Photo: Martin Neptune

Pəskehtəkʷok
Joining of the Branches

Spring 2005 ~ Issue 1

Penobscot Indian Nation
Department of Natural Resources

Phone Extensions	
David Almenas, *Forest Technician*	*7335*
Ron Bear, *Forest Technician*	*7335*
John Banks, *DNR Director*	*7330*
Rhonda Daigle, *Water Quality Monitoring Program Coordinator*	*7326*
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Frank Loring, *Game Warden*	*7392*
Josh Loring, *Game Warden*	*7392*
Jason Mitchell, *Water Resources Field Coordinator*	*7381*
Eric Nicolar, *Air Quality Manager*	*7336*
Jim Pardilla, *Game Warden*	*7392*
Ed Paul, *Game Warden*	*7392*
Jan Paul, *Water Resources Field and Lab Technician*	*7382*
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Dennis Stevens, *Forester*	*7337*
Bill Thompson, *Air Technician*	*7340*
Binke Wang, *GIS Specialist*	*7341*
Water Resources Trainees	*7363*

Tribal Air Programs Work!

Submitted by Eric Nicolar as an OpEd to Bangor Daily News and printed in their March 16th, 2005 issue

For the past four years, many of us have been reading in the news of how the Northeast states and environmental groups are suing the Environmental Protection Agency and the Bush administration for their continued weakening of the Clean Air Act rules. Recognizing that improvements in the quality of air in and around our tribal lands are not always a priority of the state or federal governments, the tribes within Maine are either implementing full air programs or are in the early stages of developing them. Here at the Penobscot Nation, the Air Quality Program is in its sixth year of answering the challenge of fighting for better ambient air conditions in this region. The Penobscot Nation has one of the more expansive tribal air monitoring networks located strategically around the tribe's reservation and trust lands. This distribution is done in cooperation with the Maine Air Bureau and the USEPA. We currently monitor many pollutants and toxics from Particulate Matter and Ozone to Sulfur Dioxide and Elemental Carbons.

Our monitors are covering gaps from the Carrabassett Valley-Alder Stream Township area to the Mattagamon-Katahdin and the Down East Lakeville area. While at the nation we use this data primarily for our own concerns, we rightfully share information with other interested groups to meet the challenge of pollution reduction, enforcement, and compliance.

On the policy side of air quality, we compile reports and submit comments that generally parallel the goals of many other groups. We do this from our developing technical capacity to evaluate and analyze the necessary parameters of air quality source emissions, monitors, and impact models. Again, in cooperation with state, federal and environmental group professionals, we make incremental advances by identifying where more pollution controls can be implemented or regulations enforced.

The tribe produces deliverables that are part and parcel of air quality management. We have begun generating our own emissions inventory for future control considerations in economic development. We also plan to implement rules that will control the expansion of emissions from this development.

The nation was recently elected the chair of the Mid-Atlantic Northeast Visibility Union (MANE-VU). MANE-VU is a regional planning organization consisting of 14 states and 2 tribal governments (Penobscot Nation and St. Regis Mohawk) that implement the regional haze rule. This law seeks to upgrade the visibility conditions around the Class I National Parks and Wildlife Refuges in the country. This collaboration is one of mutual respect for the unique abilities that each stakeholder brings to the group to protect our most scenic vistas.

The nation is also involved with national tribal organizations that fulfill needs in air quality around Indian Country. We participate nationally to encourage promulgation of rules that protect tribal air sheds, comparable to the protections implemented by the states, while striving

(Continued on next page)

(Tribal Air Programs Work - continued from previous page)

for parallel enforcement.

Many of the differences about environmental regulatory authority between the tribes and state are left aside while we share the common goal of better air quality. Guided by the Federal Trust Responsibility, tribal environmental programs work with a vision towards the future, for all people and our shared natural resources. If we all look into the future together, we'll all benefit with better air to breathe. Eric Nicolar is the air quality manager for the Penobscot Indian Nation.

Life in the Water Resources Laboratory ~ By Rhonda Daigle

Hi, I'm Rhonda Daigle and I've been working for the Water Resources Program going on eleven years, this summer. During the summer the laboratory here at the Department of Natural Resources is a very busy place! I'm the Water Resources Water Quality Monitoring Laboratory Coordinator. I work with the water resources field technicians, coordinator, and Director, Dan Kusnierz.

During the summer I need to keep up with two, and sometimes three, teams of field technicians that are out on our tribal waters gathering water samples. In order to gather these water samples, the crew uses a lot of various sampling containers. A large portion of my or my summer student assistant's job is to keep up with maintaining a steady volume of sample containers that are clean and ready for field use. This entails basically four steps: de-labeling , acid rinsing, clear rinsing, and then re-labeling. We use water proof self-sticking labels on each plastic bottle so that the field crew can write on each label whatever site they are collecting at. The crews sample between 12 to 26 sites on a river run and also use plastic bottles, glass bottles, and also plastic bags.

These samples are kept in a cooler until they arrive at the lab for analysis. We have a very nice new laboratory that gives us a lot more working space than our old laboratory did at the log cabin. **If you haven't had a chance to check it out yet, feel free to come by anytime to see it!**

The tests done on our water samples here include: 5-day BOD (biological oxygen demand), total suspended solids (TSS), pH, alkalinity, conductivity, color, and *E. coli*.

BOD is a measurement of the water's oxygen demand over a number of days. Our samples are incubated in 300 ml glass bottles in a refrigerator for five days, during which oxygen is consumed by microbes within the water. Prior to refrigeration I measure the dissolved oxygen is at 21 degrees centigrade. After five days another reading is taken to measure the remaining oxygen content. The difference between the two readings is the BOD value. Very polluted waters will have a minimum amount of oxygen remaining - which results in a high BOD.

TSS also requires subtracting an initial reading from an end reading to get the value for a sample. This value is important because it lets us know how much sediment is un-dissolved in the water sample. The crew uses 1,000 ml bottles to collect for TSS. I use filters that are placed in a vacuum pump flask to weigh an initial "blank" filter for each sample. Our weigh scale measures down to the thousandth of a decimal point for accuracy. "Blank" filters are first weighed after an initial hour long drying period in our lab's drying oven. Then, I filter 500 mls to 1000 mls of each sample into it's respective "blank" filter and

(Continued on next page)

Used with permission from Heron Dance
Copyright 2004 © Rod MacIver (www.herondance.org)

(Continued from previous page)

dry it for a second time for an hour. After cooling these filters in a desiccant machine, I'll weigh these final filters again. The difference in weight will be the amount of un-dissolved solids that a particular sample site had at the moment in time that it was collected.

pH readings tell us how acidic or basic a water sample is at a certain temperature and is closely related to alkalinity. These readings are best done out in the field, but we also do some readings in the lab. All of the samples that I measure are done as close to room temperature as possible. Normal rain water has a pH of between 5 and 6.5. Acid rain would have a range of 5.0 of less. For comparisons, lemon juice or vinegar have a pH between 1 and 2; and milk of magnesia a pH of about 10. The pH of a water body can be affected by spring run-off, acid rain or a host of other external influences.

Alkalinity, the measurement of a waters ability to maintain a certain pH, is an important measurement of lake health. In our analyses, we titrate to an end-point of 5.0 pH. The more acidic our waters are the worse it is for the environment. Therefore, we are looking to maintain and improve waters to a pH of 7. A pH of 4 would negatively affect fish reproduction.

Conductivity, a general indicator of pollution, is also done out in the field sometimes. It measures the amount of "electronic" activity in a water sample. We use a simple meter that takes a measurement from a probe inserted into the water sample. It is important for both the pH and conductivity readings to have the probe moving in the water sample and not to measure from a "static" pool of water.

Color is a measurement of water clarity. The Penobscot and its tributaries have a lot of natural color attributed to natural organic material. We use a piece of equipment called a spectrophotometer that measures filtered light transmissions. A small amount of sample, about 25 mls is put into a glass container, called a cell. This cell is inserted into the spectrophotometer. The equipment comes with a preprogrammed dial for this color test, so that all we have to do is press a button to get the reading from the cell sample. Between each sample that we are reading, a "blank" cell is read to clear the machine so that the next reading will have no bias. Using distilled or de-ionized water, the machine zeros itself out to a zero reading and is ready for the next sample.

Lastly, *E. coli* bacteria is a measurement that involves a lot of preparation and attention to detail in analysis. Bacteria in our waters can come from natural, human or a combination thereof. Excess bacteria in some waters causes closed beaches and harvesting. We prepare agar dishes that are put in a wet bath overnight with our samples that have been filtered onto a gridded sterile pad. We use a yellow urea solution that absorbs onto a blank sterile pad. We then transfer the incubated gridded pad to the yellow pad and after fifteen minutes can count the number of yellow/ green colonies that are seen. Any unusually high numbers are reported to the Director and then a repeat site visit may be required.

Public Hearing on GP's Biomass Boiler

Be on the lookout for an announcement of the date, time and place for you to voice any concerns you might have about GP burning construction demolition debris in their new biomass boiler. As stated in a March 22, 2005 - Bangor Daily News article, it is expected that the hearing will take place in early May. Although the $27.2 million biomass boiler has already been built, GP has just recently applied for an application from DEP to burn wood left over from construction demolition.

Any questions you have about this potential air quality issue, one that will be a mere 2.3 miles from Indian Island, can contact the Air Quality Program in the Department of Natural Resources.

Eric Nicolar, Air Quality Manager

817-7336

PLEASE NOTE:
This advisory has undergone slight changes in content to reflect new information as well as format to make it more understandable!

Warning!

Guidelines for eating fish from Penobscot Territory Waters

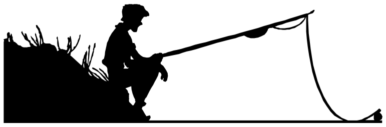
To prevent possible harm from mercury, dioxins, and PCBs due to eating freshwater fish, we offer this advice:

All children under 8 and women who are nursing,
pregnant or could become pregnant,

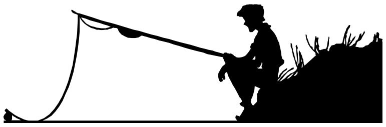
the most sensitive population from health effects of mercury,

should eat ***NO FISH***
from Penobscot Nation Territory waters
and other Maine inland waters.

If you are eating fish: small trout and salmon are safer choices than large bass and pickerel.



EVERYONE ELSE who is taking fish from
Penobscot Nation Territory Waters



on the Penobscot River below
Mattaseunk Dam (Mattawamkeag)

You should
eat NO
more than

1 meal per month.

This advisory is for protection from dioxins and PCBs.

OR

anywhere else, where you are taking...

… Brook trout,
Landlocked salmon

You should
eat NO
more than

1 meal per week.

OR

Any
other fish

You should
eat NO
more than

2 meals per month.

These advisories
are for protection
from mercury.

For questions or
more information: Penobscot DNR
207.827.7776, x. 7361

SUPPORT DAM REMOVAL ON THE PENOBSCOT RIVER - PLEASE WRITE TO PRESIDENT BUSH NOW!

Penobscot Partners is calling on President Bush to provide funding for the Penobscot River Restoration Project in his next federal budget. Federal funding is needed to make this deal a reality! Federal agencies are already starting work on their budgets for FY 2007 (which begins in October, 2006). A significant line item in that budget for the purchase of the Penobscot dams would allow us to buy the dams quickly and move ahead to removal. We are asking President Bush to put $20 million for the Penobscot project in his FY2007 budget. We need you to write the President and urge him to make this money available. If enough people write now, it will ensure that the project gets as much attention as possible leading up to the early summer, when agency budgets will begin to take form.

When you write the White House, please either send an e-mail or a faxed letter (mail to the White House is very slow).

You can use the following link to e-mail President Bush: **president@whitehouse.gov**, or you can draft a letter and fax it to President Bush at **(202) 456-2461**.

You can use the draft text you will find below, you can edit it, or you can write your own letter. *Handwritten letters are the best!* If possible, you should include something personal about your interest in the Penobscot River. You should also emphasize that putting this money in the budget would go a long way towards making the project a success, and establishing an environmental legacy for President Bush in New England.

Your support will help make a difference! The Penobscot Partners thank you for your time, effort and support.
For more information see www.penobscotriver.org

BRING YOUR LETTERS TO THE PIN DNR OFFICE TO FAX!

President George W. Bush
The White House
Washington, DC 20500

Dear President Bush:

I am writing to urge you to provide funding for the Penobscot River Restoration Project in Maine. This project is the best hope we have for restoring Atlantic salmon in Maine, and will also provide substantial benefits to other fish species and the overall health of the Penobscot River, Maine's largest watershed. Just as importantly, the project can serve as a national model for cooperative watershed restoration on a large scale. The federal government will have to play an important role in funding the project if it is to succeed.

For more than 100 years, the health of the Penobscot River and its runs of salmon and other anadromous fish have been impaired by the dozens of dams that have been built in the watershed, first for mechanical power and eventually to generate electricity. In recent years, several hydropower dams on the lower Penobscot owned by PPL of Maine have been caught up in difficult relicensing processes, while at the same time the decline in Atlantic salmon populations has only increased. In an historic achievement, a diverse group of parties, including PPL, the State of Maine, the Department of the Interior, the Penobscot Indian Nation, and a coalition of conservation organizations, have negotiated a solution that will deal with both of these intractable situations.

PPL has agreed to sell three of its Penobscot basin dams to a newly created nonprofit corporation. Those dams will be decommissioned, opening up huge portions of the watershed to Atlantic salmon. At the same time, enhancements at other PPL hydropower facilities in the watershed will replace almost all of the 18 megawatts of capacity that will be lost when the three dams are sold. The parties have come up with a way to reconfigure hydropower generation in the watershed in a way that will promote significant fisheries restoration. Collaboratively they have been able to achieve success that would have been impossible in the regulatory process, and through this innovative approach they have created the chance that future generations of New Englanders will be able to fish for Atlantic salmon in the United States.

The project will require significant funding to implement. The dams will cost between 24 and 26 million dollars, and, full implementation of the project, including removal of two the dams and construction of a river-like by-pass at the third, may cost as much as another 30 million dollars. While there will be private and state dollars available, a significant amount of federal money will be needed to make this project happen.

Mr. President, I am urging you to include $20 million in your 2007 fiscal year budget for the Penobscot Project. That amount of funding would guarantee that the dams will be purchased by 2008, and would allow the project to move forward to implementation. Taking this step would ensure an environmental and recreational legacy for the region that will last for generations.

Photo: Martin Neptune

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Spring 2005 ~ Issue 2

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Welcome Our New Biologist!

The Department of Natural Resources is thrilled to announce our new arrival - Kristin Dilworth! Kristin has been hired as our Big Game Biologist and will be working to develop a management strategy that will help ensure the continuation of healthy populations of deer and moose within Penobscot Nation Trust Lands. In addition to the ecological importance of protecting these wildlife populations, their presence will continue to provide tribal members with harvest opportunities.

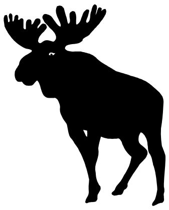
The Nation's Forest Management Plan calls for practices that enhance habitat characteristics for deer and moose, with stumpage income being a lower priority. However, more data is needed in order to better understand whether PIN forestry practices are accomplishing their objectives.

Over the next two years Kristin's work will include the following:

1. Determine whether the current deer and moose populations and harvest rates on each tribal territory are sustainable.
2. Identify, map, and evaluate the quantity and quality of deer wintering habitat located on or adjacent to PIN territories.
3. Identify, map and evaluate the availability and condition of highly utilized moose cover types and wetlands.
4. Determine the overall health of the deer and moose herds on PIN territories.
5. Identify PIN's population, harvest rate, and use goals for deer and moose.
6. Develop 10-year white-tail deer and moose management strategies for PIN lands that will guide the PIN Fish and Game Committee with harvest and regulation decisions and the PIN DNR with forest management planning activities.

Kristin graduated from the University of Maine in 2003 with a Bachelor of Science in Wildlife Ecology and a minor in Zoology. Prior to joining our staff she worked with Jim Gilbert, a professor at UMO, on capturing baby seal pups and fitting them with radio transmitters to study their population dynamics.

Kristin is originally from Pennsylvania, but lived in Olamon for 6 years when she was young. She is looking forward to spending more time in the area!



APPLY NOW to become a BEACCON for Positive Action!

Are you up for the challenge to be trained and led by expert organizers, activists and politicians to master the political and leadership skills needed to protect our environment and communities? Is anyone you know? If so, sign up with the Center for Environmental Citizenship to join fifty diverse and amazing college students of color from across the country to for one week. You will be working and learning to:

Break-down racism in special trainings
Energize your group through recruitment sessions
Access great jobs and resources through the EnviroCitizen Alumni Future
Communicate your message through the media
Change the world by empowering yourself as a leader
Organize campaigns with strategy and planning skills
Network with students, professional activists, and experts on the issues

Keynote speakers will share their inspirational stories and charge us with a call to action. At night, teams of students will participate in rigorous campaign simulations to reinforce the skills acquired each day. Participants will experience the disparate, negative impact of unsound environmental policies and practices on communities with high populations of people of color and low-income residents. Together, you will work across traditional, cultural, and racial boundaries to build political capacity, professional networks, and personal relationships.

WHERE: Washington, DC

WHEN: July 20 - 25, 2005

COST: $55 (due upon acceptance) for all food, training, and housing. Travel scholarships are available.

REGISTRATION DEADLINE: May 13, 2005

REGISTRATION FORM FOUND AT:

www.envirocitizen.org/sta/2005/app.asp

Once you fill out this application you will be contacted and asked to fill out one short answer question, two short essay questions and submit a resume.

If you would like more information please contact
Brian Cabezas at (202) 986-1650, x15 or
bcabezas@envirocitizen.org

ENVIROCITIZEN
the center for environmental citizenship

REQUEST FOR BIDS

The Water Resources Program is requesting bids for a river-bank restoration project on Indian Island. The project will involve rip-rapping and shaping approximately 112 feet of river bank.

For more information or to submit a bid please contact Jason Mitchell at 817-7381

All contractors must have liability insurance and workman's compensation insurance.

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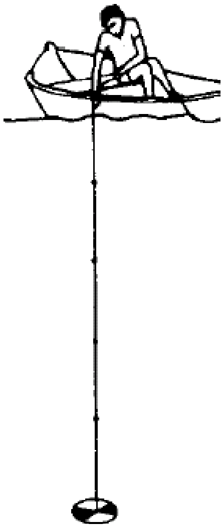
Secchi Depth: An Important Estimate of Water Quality



This very simple measurement can tell us a lot about the health of a water body. Secchi depth is the backbone of all the various measurements for lakes, but we also do it on the river when it is possible. The process requires the use of a "viewscope" to watch a black and white disk as it is lowered down into the water. The view scope serves much like a snorkeling mask, helping you to see what is underwater.

When we conduct this process we have to lower the disk down until it can no longer be seen, then raise it until it can be seen again, and finally lowering it one more time until it can no longer be seen again. Once this is done we record the depth at which the disk is hanging by reading the tape measure to which it is attached.

The greater the depth at which you can see a secchi disk the better the quality is in that water body. If the depth at which you take the reading is shallow that means there is a lot of material in the water making it "cloudy" and hard to see the disk. This material could be, for example, soil or algae. Secchi disk measurements are often taken to predict when high levels of algae growth might occur. A trend in decreasing secchi depths over time indicate a need to look at the amount of nutrients entering a water body. If surrounding land-use practices are changed in time a water body can be saved.

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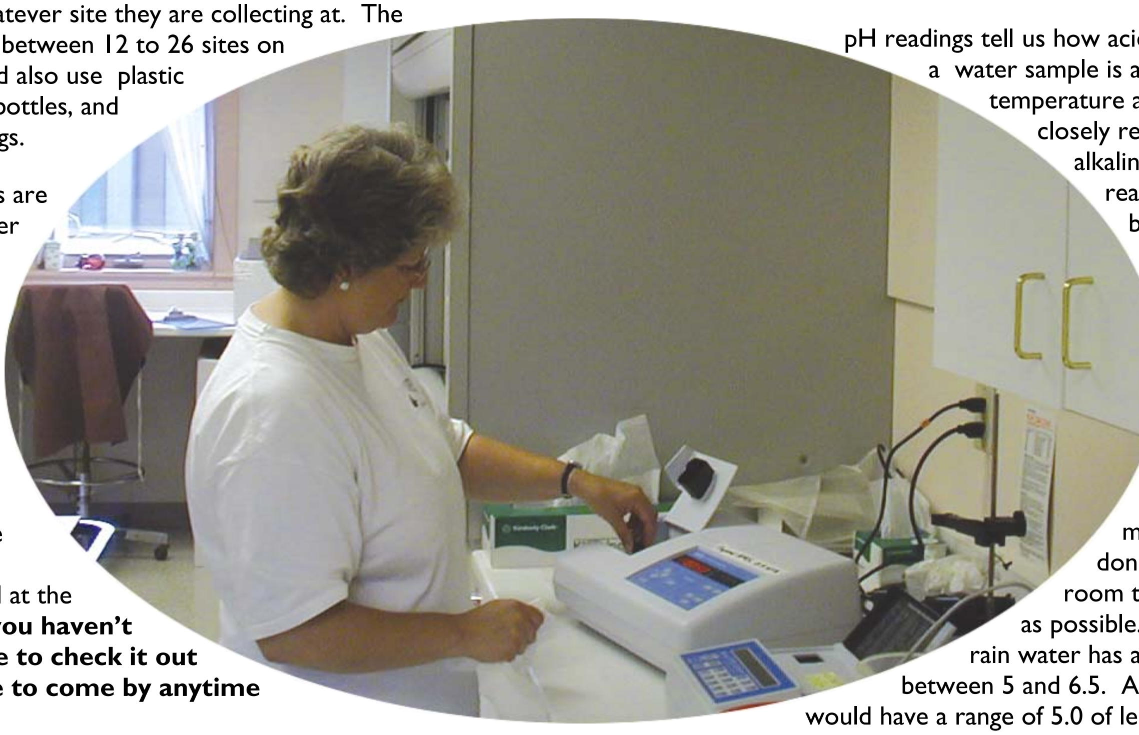

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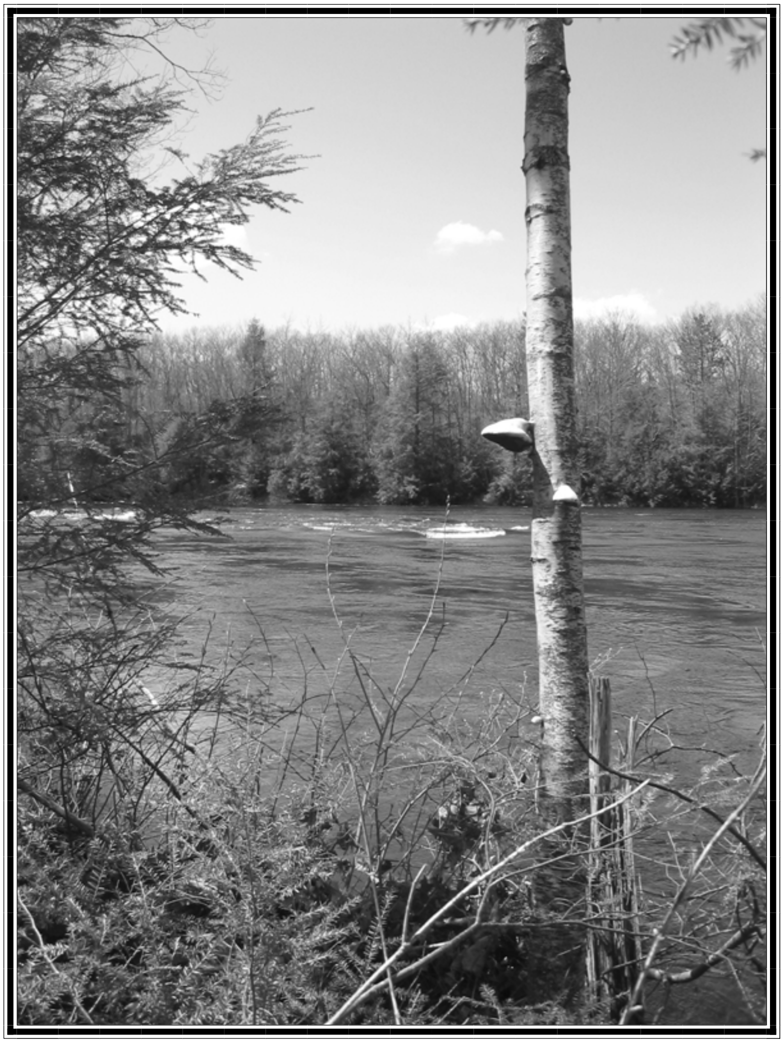
Conductivity, a general indicator of pollution, is also done out in the field sometimes. It measures the amount of "electronic" activity in a water sample. We use a simple meter that takes a measurement from a probe inserted into the water sample. It is important for both the pH and conductivity readings to have the probe moving in the water sample and not to measure from a "static" pool of water.

Color is a measurement of water clarity. The Penobscot and its tributaries have a lot of natural color attributed to natural organic material. We use a piece of equipment called a spectrophotometer that measures filtered light transmissions. A small amount of sample, about 25 mls is put into a glass container, called a cell. This cell is inserted into the spectrophotometer. The equipment comes with a preprogrammed dial for this color test, so that all we have to do is press a button to get the reading from the cell sample. Between each sample that we are reading, a "blank" cell is read to clear the machine so that the next reading will have no bias. Using distilled or de-ionized water, the machine zeros itself out to a zero reading and is ready for the next sample.

Lastly, *E. coli* bacteria is a measurement that involves a lot of preparation and attention to detail in analysis. Bacteria in our waters can come from natural, human or a combination thereof. Excess bacteria in some waters causes closed beaches and harvesting. We prepare agar dishes that are put in a wet bath overnight with our samples that have been filtered onto a gridded sterile pad. We use a yellow urea solution that absorbs onto a blank sterile pad. We then transfer the incubated gridded pad to the yellow pad and after fifteen minutes can count the number of yellow/green colonies that are seen. Any unusually high numbers are reported to the Director and then a repeat site visit may be required.



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Copyright 2004 © Rod MacIver (www.herondance.org)

PLEASE NOTE:
This advisory has undergone slight changes in content to reflect new information as well as format to make it more understandable!

Warning!

Guidelines for eating fish from Penobscot Territory Waters

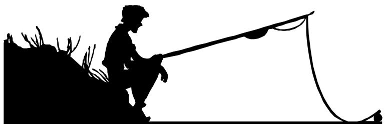
To prevent possible harm from mercury, dioxins, and PCBs due to eating freshwater fish, we offer this advice:

All children under 8 and women who are nursing, pregnant or could become pregnant,

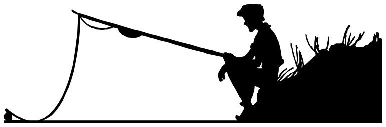
the most sensitive population from health effects of mercury,

should eat ***NO FISH***
from Penobscot Nation Territory waters
and other Maine inland waters.

If you are eating fish: small trout and salmon are safer choices than large bass and pickerel.



EVERYONE ELSE who is taking fish from Penobscot Nation Territory Waters



on the Penobscot River below Mattaseunk Dam (Mattawamkeag)

You should eat NO more than

1 meal per month.

This advisory is for protection from dioxins and PCBs.

OR

anywhere else, where you are taking...

… Brook trout, Landlocked salmon

You should eat NO more than

1 meal per week.

OR

Any other fish

You should eat NO more than

2 meals per month.

These advisories are for protection from mercury.

For questions or more information: Penobscot DNR
207.827.7776, x. 7361

SUPPORT DAM REMOVAL ON THE PENOBSCOT RIVER - PLEASE WRITE TO PRESIDENT BUSH NOW!

Penobscot Partners is calling on President Bush to provide funding for the Penobscot River Restoration Project in his next federal budget. Federal funding is needed to make this deal a reality! Federal agencies are already starting work on their budgets for FY 2007 (which begins in October, 2006). A significant line item in that budget for the purchase of the Penobscot dams would allow us to buy the dams quickly and move ahead to removal. We are asking President Bush to put $20 million for the Penobscot project in his FY2007 budget. We need you to write the President and urge him to make this money available. If enough people write now, it will ensure that the project gets as much attention as possible leading up to the early summer, when agency budgets will begin to take form.

When you write the White House, please either send an e-mail or a faxed letter (mail to the White House is very slow).

You can use the following link to e-mail President Bush: **president@whitehouse.gov**, or you can draft a letter and fax it to President Bush at **(202) 456-2461**.

You can use the draft text you will find below, you can edit it, or you can write your own letter. *Handwritten letters are the best!* If possible, you should include something personal about your interest in the Penobscot River. You should also emphasize that putting this money in the budget would go a long way towards making the project a success, and establishing an environmental legacy for President Bush in New England.

Your support will help make a difference! The Penobscot Partners thank you for your time, effort and support.
For more information see www.penobscotriver.org

BRING YOUR LETTERS TO THE PIN DNR OFFICE TO FAX!

President George W. Bush
The White House
Washington, DC 20500

Dear President Bush:

I am writing to urge you to provide funding for the Penobscot River Restoration Project in Maine. This project is the best hope we have for restoring Atlantic salmon in Maine, and will also provide substantial benefits to other fish species and the overall health of the Penobscot River, Maine's largest watershed. Just as importantly, the project can serve as a national model for cooperative watershed restoration on a large scale. The federal government will have to play an important role in funding the project if it is to succeed.

For more than 100 years, the health of the Penobscot River and its runs of salmon and other anadromous fish have been impaired by the dozens of dams that have been built in the watershed, first for mechanical power and eventually to generate electricity. In recent years, several hydropower dams on the lower Penobscot owned by PPL of Maine have been caught up in difficult relicensing processes, while at the same time the decline in Atlantic salmon populations has only increased. In an historic achievement, a diverse group of parties, including PPL, the State of Maine, the Department of the Interior, the Penobscot Indian Nation, and a coalition of conservation organizations, have negotiated a solution that will deal with both of these intractable situations.

PPL has agreed to sell three of its Penobscot basin dams to a newly created nonprofit corporation. Those dams will be decommissioned, opening up huge portions of the watershed to Atlantic salmon. At the same time, enhancements at other PPL hydropower facilities in the watershed will replace almost all of the 18 megawatts of capacity that will be lost when the three dams are sold. The parties have come up with a way to reconfigure hydropower generation in the watershed in a way that will promote significant fisheries restoration. Collaboratively they have been able to achieve success that would have been impossible in the regulatory process, and through this innovative approach they have created the chance that future generations of New Englanders will be able to fish for Atlantic salmon in the United States.

The project will require significant funding to implement. The dams will cost between 24 and 26 million dollars, and, full implementation of the project, including removal of two the dams and construction of a river-like by-pass at the third, may cost as much as another 30 million dollars. While there will be private and state dollars available, a significant amount of federal money will be needed to make this project happen.

Mr. President, I am urging you to include $20 million in your 2007 fiscal year budget for the Penobscot Project. That amount of funding would guarantee that the dams will be purchased by 2008, and would allow the project to move forward to implementation. Taking this step would ensure an environmental and recreational legacy for the region that will last for generations.

Photo: Martin Neptune

Pəskehtəkʷok
Joining of the Branches

Penobscot Indian Nation

Spring 2005 ~ Issue 3

Phone Extensions

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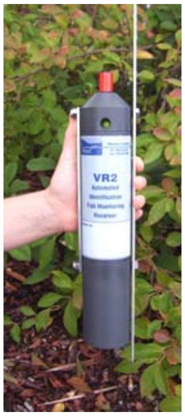
Water Resources Trainees	7381

Pretty in Hot Pink?

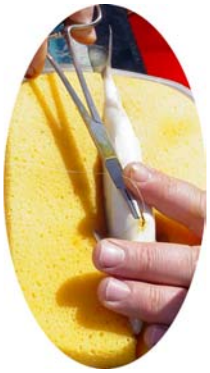


Okay, maybe they aren’t exactly pretty but the hot pink buoys you see around the Island are very informative. You can see them as you drive over the bridge near the pond and if you are standing on horse’s bridge. Attached to these buoys are acoustic tag detectors and data loggers (see picture to right). The University of Maine Cooperative Fish and Wildlife Research Unit (CFWRU) is using this technology to record the date, time and depth of specially-tagged Atlantic salmon smolts as they pass by.

Smolts are at one of the most critical stages of their life cycle, occurring after 1-3 years of living in the river and then transforming into a migratory juvenile. Although the Penobscot River supports the largest run of Atlantic salmon in the United States, total adult returns have fallen under 800 fish in recent years. This study is monitoring 350 wild and hatchery reared Atlantic salmon smolts that have been tagged and released into the Penobscot River. These fish will be studied for the entire period of time it takes for them to travel to the sea - usually by mid-June.

> There never used to be tags small enough to use in fish the size of many Atlantic salmon smolts (13-17 cm) until recent advances from Vemco Inc., a company out of Nova Scotia, Canada.

A significant number of both wild- and hatchery reared smolts can die on their way to the ocean each year - sometimes as much as 50%. As you might guess, dams can contribute a great amount to this loss. A National Academy of Sciences report in 2004 determined that dams are known to be a site of impact through increased predation risk and direct injury as well as through delays in migration. However, the extent of the losses and delays from dams needs more study.



This study will help to better understand the success of their downstream migration, the biggest impacts they face and how well dam removal might help their recovery. There are currently 18 acoustic tag detectors and data loggers throughout Penobscot Reservation waters, all of which rely on the fish being implanted with tags, called pingers, which give off a series of energy pulses. Check out a smolt getting implanted with a pinger in this picture to the right.

You will continue to see the buoys until October because adult salmon will also be tagged and monitored. We will keep you updated on these efforts and describe the findings that this study produces. So look for more articles in future newsletters!

Maine's Eleven Most Unwanted

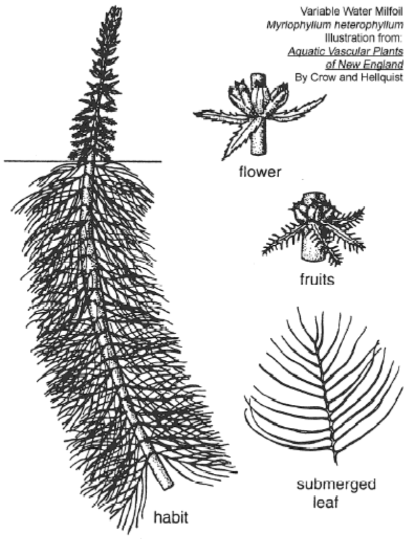
This is the time of year when we all start going to a camp on the lake and taking our boats onto the water. In order to maintain the health of the lakes that we all so enjoy, we must be aware of the many impacts that threaten them. One of the greatest challenges of the time is the spread of invasive aquatic plants by hitching a ride on a boat, trailer or other gear that is used in the water, such as fishing gear and anchors. The speed at which a new introduction can explode into an ecologically and economically disastrous infestation is well documented. In order to truly have an effective, early detection system there must swift and vigorous action that has unprecedented commitment to the "long haul." JUST ONE PLANT CAN PERMANENTLY INFEST AN ENTIRE LAKE AND THEY ARE IMPOSSIBLE TO REMOVE ONCE ESTABLISHED!

Known infestations of aquatic invaders in Maine, at present, are relatively low, but we must not let that make us think that it will stay that way forever without a watchful eye! Every one of the other lower 48 states has experienced introductions of invasive species and, as a consequence, have also seen the following problems:

- reduced property values,
- significant habitat disruption,
- loss of native plant and animal communities,
- impaired fishing and water recreation opportunities, and
- large public/private expenditures to control these plants.

There are 11 plants currently listed as imminent threats to Maine waters. These are:

European Frogbit
Water Chestnut
Yellow Floating Heart
Eurasian Water Milfoil
Variable Water Milfoil*
Parrot Feather
Fanwort
Hydrilla*
Brazilian Elodea
European Naiad
Curly-Leaved Pondweed


Variable Water Milfoil
Myriophyllum heterophyllum
Illustration from:
Aquatic Vascular Plants of New England
By Crow and Hellquist

Plants marked with an asterisk* have been documented in Maine waters. Variable Water Milfoil has been found in 16 Maine water bodies. Hydrilla, often considered to be the most aggressive plant on the list, was discovered in Pickerel Pond in Limerick in 2002.

FREE WORKSHOP:
INVASIVE AQUATIC PLANT IDENTIFICATION

DAY: Wednesday July 6th
TIME: 4:00 - 9:30pm
LOCATION: Deering Hall, University of Maine, Orono Campus
REGISTRATION FORM: Found at www.mainevlmp.org/mciap/

Because of the severity of the problems that these plants cause, it is now a REQUIREMENT FOR ALL WATERS IN MAINE AND PENOBSCOT TERRITORIES to have a lake and river protection sticker on all registered watercraft . New stickers must be purchased every year. The stickers cost $10 for residents and $20 for nonresidents and can be purchased from the Tribal Clerk's office along with boat registration. The proceeds from the sale of these stickers go directly to help with enforcement of the laws, education about invasive plants, training people to identify the plants and inspect boats. Because it is now ILLEGAL to:

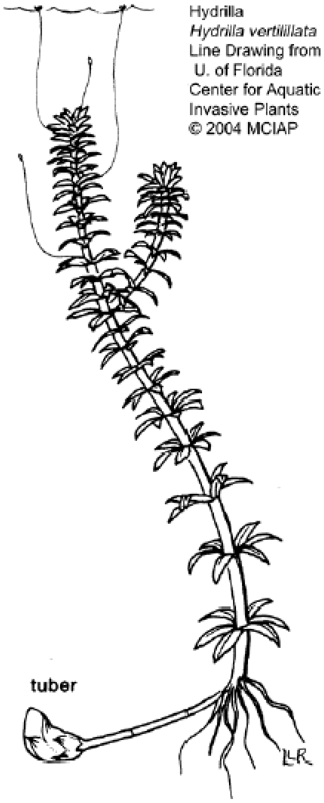
- transport ANY aquatic plant on the outside of a vehicle, boat, trailer or other equipment,
- launch a watercraft carrying any invasive aquatic plant on inland waters, or
- sell, grow or introduce invasive aquatic plants,

you CAN BE FINED! If either a PIN warden or a Maine state warden finds that you don't have one of these stickers they can issue you a summons for a civil violation. This carries with it a fine of not less that $100 and not more than $250. In addition, a person who places a watercraft that is contaminated with an invasive aquatic plant commits also civil violation for which a forfeiture of not less than $500 and not more than $5,000 per violation may be adjudged.

EVERY TIME YOU LAUNCH OR TAKE OUT YOUR BOAT, PLEASE DO THE FOLLOWING:

- Remove all plants from boats, motors, trailers, anchors, lines and fishing equipment.
- Place the removed plants in a trash can or on high dry land very far from the water.
- Dispose of engine cooling water and livewell water on high dry land.

If you think that you have an invasive plant growing in your lake or attached to your boat you can report it to the Maine Center for Invasive Aquatic Plants (MCIAP). The process for doing



Hydrilla
Hydrilla vertillilata
Line Drawing from
U. of Florida
Center for Aquatic &
Invasive Plants
© 2004 MCIAP

that, as well as collecting and submitting a sample of the plant in question, is as follows:

Contact:

1. Call MCIAP at 783-7733 or email them at mciap@mainevlmp.org
2. Be prepared to give a brief description of the plant in question.
3. You may be asked to collect a sample of the plant and send it to MCIAP for identification.

Collecting a plant specimen:

1. You must be very careful when collecting a plant specimen. Fragmentation could result in an invasive plant spreading to other areas of the lake.
2. If possible, collect several (3-5) healthy stems of the plant in question. The flower, fruits and winter buds of many aquatic plants are helpful in the identification process. If these structures are present, be sure to include them in your sample. Gently break off stem sections about 6-8" long, from the top portion of the plant. For rooted floating leaved plants, be sure to include as much of the stem as possible.
3. DO NOT attempt to pull the plant out by its roots. (This is very important!)
4. Mark the location of the plant with a weighted buoy.
5. If possible, mark the location on a map. A map of the waterbody may be available on the PEARL website pearl.maine.edu
6. If the plant is covered with algae or tangled in debris, remove as much of the unwanted material as possible, without damaging the specimens.
7. Keep the specimens alive in a container full of water in the refrigerator until you are ready to ship them.

Preparing specimens for mailing:

1. Place wet specimens a water-tight plastic bag, (e.g., Ziploc).
   * If the plant is delicate and/or flimsy, add enough water to the bag to cushion the plant and keep it wet.
   * If the plant is relatively sturdy, remove all air from the bag and seal. DO NOT wrap the plant in a wet paper towel or other absorbent material.
2. Make sure the bag is sealed tight and place it in a small box with enough packing material to prevent movement. Cardboard mailing envelopes are fine for sturdy specimens that are not packed in water. Padded envelopes do not work well for plant specimens.
3. Fill out and include a Suspicious Plant Form in the box with the specimens. This information is critical to tracking plants sent in for identification, and ensuring a timely response.
4. Mail the specimen on a Monday or Tuesday, to minimize the possibility of weekend delays. Please contact MCIAP at (207) 783-7733 or mciap@mainevlmp.org to let us know the specimen is on its way. We will be looking for it.

Send packaged specimens to:

Volunteer Lake Monitoring Program
24 Maple Hill Road
Auburn, Maine 04210

Response:

They will contact you within 72 hours of receiving your plant sample. They will identify the plant and confirm whether or not it is an invasive species. If the plant is invasive, the Maine Department of Environmental Protection will be notified, and a rapid response action plan will be initiated.

All of the PIN Water Resources staff and Game Wardens are here to help you if you have general questions, would like a picture key for identifying these plants, or need a copy of the suspicious plant form to submit with a sample. Call us or come by the office. Printed information is also available on the board next to the central DNR office and at the Tribal Clerk's office.

KEEP YOUR EYES OPEN FOR ANY OF THESE PLANTS!

GOT UNWANTED ANTS IN YOUR HOUSE? YOU CAN GET RID OF THEM WITHOUT CHEMICALS!

Sugar Ant Hotel

- 1 cup borax
- 1 cup sugar water
- 4 shallow glass jars with screw tops
- 4 loose wads of toilet paper

In a bowl, mix the borax and sugar. Place a loose wad of toilet paper into each of four different screw-top jars. Pour a quarter of the sugar and borax mixture into each of the four jars, over the toilet paper. Fill each jar with water to one inch of the top. Screw the lids on the jars, and with a hammer and nail, make four to eight holes in the lid. Place the jars in areas where you have ants (but keep away from pets and children).

Helpful Hints: This ant trap will catch the workers but not the queen. A more comprehensive solution is to blend 1/4 cup of confectioner's sugar and one tablespoon of borax and sprinkle it in ant traffic areas. There is not enough borax with this method to kill the worker ants immediately, so they take it back to the nest, ultimately eradicating it. (If the worker ants do die at the powder, cut back on the borax.)

These tips comes from www.care2.com/channels/lifestyle/home

Caution:
Keep borax products away from pets and other animals.

REQUEST FOR BIDS

The Water Resources Program is requesting bids for a river-bank restoration project on Indian Island. The project will involve rip-rapping and shaping approximately 112 feet of river bank.

For more information or to submit a bid please contact Jason Mitchell at 817-7381

All contractors must have liability insurance and workman's compensation insurance.

Why Dandelions Are To Be Loved

While most people enjoy seeing hummingbirds, they don't typically extend that appreciation to dandelions as well. What is the connection you ask? It's all in the nest - materials that is. Come to find out, one of the key materials these beautiful creatures use to make their nests is dandelion down - the fluffy stuff that blows around after their yellow phase.

Ruby-throated hummingbirds are the only species of hummingbirds that breed in eastern North America throughout the eastern deciduous and mixed forests. They spends the winter in Central America, flying nonstop across the Gulf of Mexico to get there. When they return in the spring they come back and use various materials to make their nest, including:

Spider silk - because it is easy to find, very strong, sticky enough to hold lichens and down together, waterproof, good camouflage and easy for them to manipulate with their tiny beaks. Best of all, it's stretchiness allows the nest to grow with the babies.

Dandelion and thistle down - because they are soft, waterproof, good insulation, and easy for them to manipulate. Dandelion down is easy for a hummer to find just about anywhere - as long as we don't feel the need to kill them all with chemicals!

Lichens - because they are tiny, strong for their weight, easy for a tiny hummingbird to manipulate, and waterproof. Because they provide good camouflage against branches, lichens are used mostly on the outside of the nest.

SO LEARN TO LOVE YOUR DANDELIONS!
Because everything is connected to everything else, there is always a use for things.

Conservation Camp Coming Soon

Keeping children entertained and educated over the summer can be a challenge. The Piscataquis County Soil and Water Conservation District's "Conservation Camps" make learning fun and give **children ages 7 to 14** an opportunity to explore the natural resources of the region.

REGISTER NOW!
Enrollment limited to 30 per session

MORNING SESSIONS:
9:00 am - noon will be for children age 7 to 10

AFTERNOON SESSIONS:
1:00 - 4:00 pm will be for children age 11 to 14

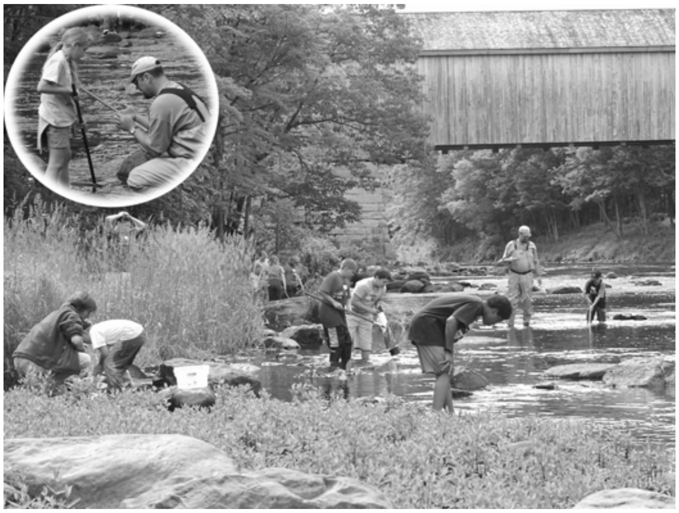
Enrollment is limited to 30 children per session, so age groups may be adjusted to keep session numbers even or to accommodate individual family needs.

THE FIRST WEEK OF CAMP: JUNE 27 - JULY 1

GATHERING LOCATION: Foxcroft Academy Student Center, Dover-Foxcroft

AGENDA

Monday: Dan Kusnierz, Water Resources Program Manager for the Penobscot Indian Nation, will speak about water quality and the kinds of critters that live in and near healthy waters.



Tuesday: More hands-on learning when Soil Scientist Ron Olson, of Natural Resources Conservation Service, teaches the kids how to dig a soil pit in the forest.

Wednesday: Entomologist Clay Kirby, from University of Maine, will present a slide show about insects and how to capture them, allow the children to handle various specimens, and, weather allowing, take the children outdoors to catch and release insects native to our own backyards.

Thursday: Doug Kane, of Inland Fisheries and Wildlife, will teach our day campers about wildlife and take them out to explore habitat.

Friday: Gordon Moore, of the Maine Forest Service, will teach the children how to measure trees to estimate their age and how to identify different types of trees.

THE SECOND WEEK OF CAMP: JULY 11 - JULY 15

GATHERING LOCATION: Student Resource Center, Foxcroft Academy

AGENDA

Monday: Fallow Deer & Buffalo at Breakneck Ridge in Blanchard.

Tuesday: See cows, calves and the milking process, Gilrock Dairy Farm, Sangerville.

Wednesday: Learn about raising game birds at Three Rivers Wing Shoot in Milo.

Thursday: Pick new crops at Stutzman's Vegetable Farm, Sangerville

Friday: Learn about horse care and equestrian skill at Infinity Farm, Dover-Foxcroft

Enrollment in the district would have been limited to fewer children without the many donations of time, money and supplies from the community including:

- United Way's Keeping Kids on Track program enables the district to provide school bus transportation for our campers.
- Piscataquis Public Health Council is funding the three days of camp that incorporate nutrition education and locally grown food promotion.
- The Milo Garden Club and Palmyra Wal-Mart have donated funds and materials that make it possible for the children to create natural resource-based crafts during camp.
- Save-a-Lot Food Store in Dover-Foxcroft and Horizon Organics are providing snacks.
- The guest speakers who donate their time to put on presentations, farm families willing to open their homes to the children and parents able to help provide supervision.

COST: $25 per child per week (if necessary you can register for individual days at $5 per child per day) DNR may be able to help with expenses, please call Angie at 817-7360.
REGISTRATION: Fill out the form included on the next page and send to the address listed. Call 564-2321, ext. 3 with questions.

Children should wear sturdy shoes that can get muddy - AVOID OPEN-TOED SHOES! Water bottles, sun screen and insect repellent from home are welcomed.

CONSERVATION CAMP REGISTRATION

Please fill out this form and send it back with a check for $25 per child, per week, by June 22 to:

Piscataquis County SWCD
42 Pine Crest Drive
Dover-Foxcroft, ME 04426

Parent/Guardian Name: ______________________________

Address: ____

Phone#:_________________________ Emergency Phone #:________________

Child/Children's Name: Age
________________________ ______
________________________ ______
________________________ ______
________________________ ______

Does your child have any medical conditions that we should be aware of (i.e. diabetes, asthma, allergies, etc.)?
Yes_______ No ______
If yes, please exlain:
____
____

If your child requires a behavioral specialist while in school, please provide adult supervision on the days he or she attends camp.

Parents and friends are welcome to attend.

Due to the risk of Hoof & Mouth Disease, students who have been out of the country 2 weeks prior to summer camp will not be able to participate on the Agricultural Tours.

The Piscataquis County Soil and Water Conservation District, program presenters and Agricultural Tour farm owners will not be held responsible for injuries or damages.
Please do not send your child to camp in open-toed shoes for their own safety. Shoes that can get wet are recommended for Water Quality Day.
Discipline policy: Our rules are simple. Be polite to the guest speakers. Don't do anything that could hurt you or somebody else, such as running, throwing rocks, swinging sticks. Any child who cannot follow the rules after verbal warnings will be asked to skip the next day of camp. If they still can't follow the rules upon their return, they will be asked to leave the camp for the week.

_ _

Which week/program would your child be interested in: **Check one or both**
June 27 – July 1 Natural Resources ________
July 11- July 15 Agriculture Tours ________
Would you prefer a.m. or p.m. sessions? _________
Would any adults be attending the tours: Yes____ No____ How Many ____
Would you be willing to volunteer on certain days to supervise: Yes___ No ____
Do we have permission to photograph your child for possible publication in local newspapers event posters and District newsletters: Yes____ No_____

For more information, please call 564-2321, ext. 3

Pəskehtəkʷok
Joining of the Branches

Photo: Martin Neptune

Summer 2005 ~ Issue 1

Penobscot Indian Nation
Department of Natural Resources

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Lyme Disease in Maine:
A Serious Threat

By Kristin Dilworth, PIN Biologist

I have often heard Mainers boast to people from "away" that among Maine's greatest attributes is the fact that we have "nothing poisonous here to worry about." Our walks through the woods have been worry-free, devoid of the constant vigilance Southerners have to take part in. Until now, our greatest fears in the woods have been avoiding mama and baby bears, and not confronting a moose during rut.

However, a very small arachnid has changed the outlook of thousands of New Englanders who are diagnosed annually with lyme disease. Lyme disease is caused by spirochete bacteria, and is transmitted to humans by the deer tick. Ticks have three growth stages in their life cycle: larva, nymph, and adult. Each stage requires a blood meal to progress to the next stage. Once a larva is hatched, it will wait for a host to brush up against it, preferably something small such as a bird or mouse. Deer ticks are not born with spirochete bacteria, they acquire it from their host, which has the bacteria from previous tick bites. Therefore, hosts (which are sometimes referred to as "reservoirs") are located in high numbers in lyme infested areas. Most larvae, after feeding, will drop off their hosts and molt into nymphs. They will remain inactive throughout the fall and winter until early May. The nymphs will again search out a blood meal and morph into adults. When the adults are seeking their blood meal they prefer to attach to deer, but will feed on any warm

COME LEARN MORE ABOUT TICKS AT A DNR-SPONSORED LECTURE ON THE TOPIC!

Where: Large conference room of DNR building

When: Tues July 26th, 6pm

Adult deer tick searching for a suitable place to feed. These are MUCH smaller than other tick species.

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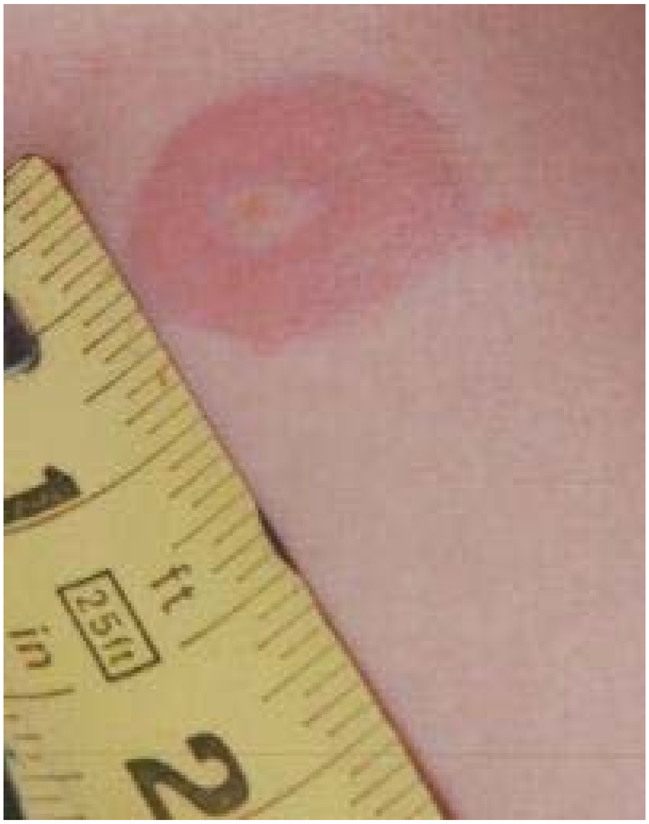

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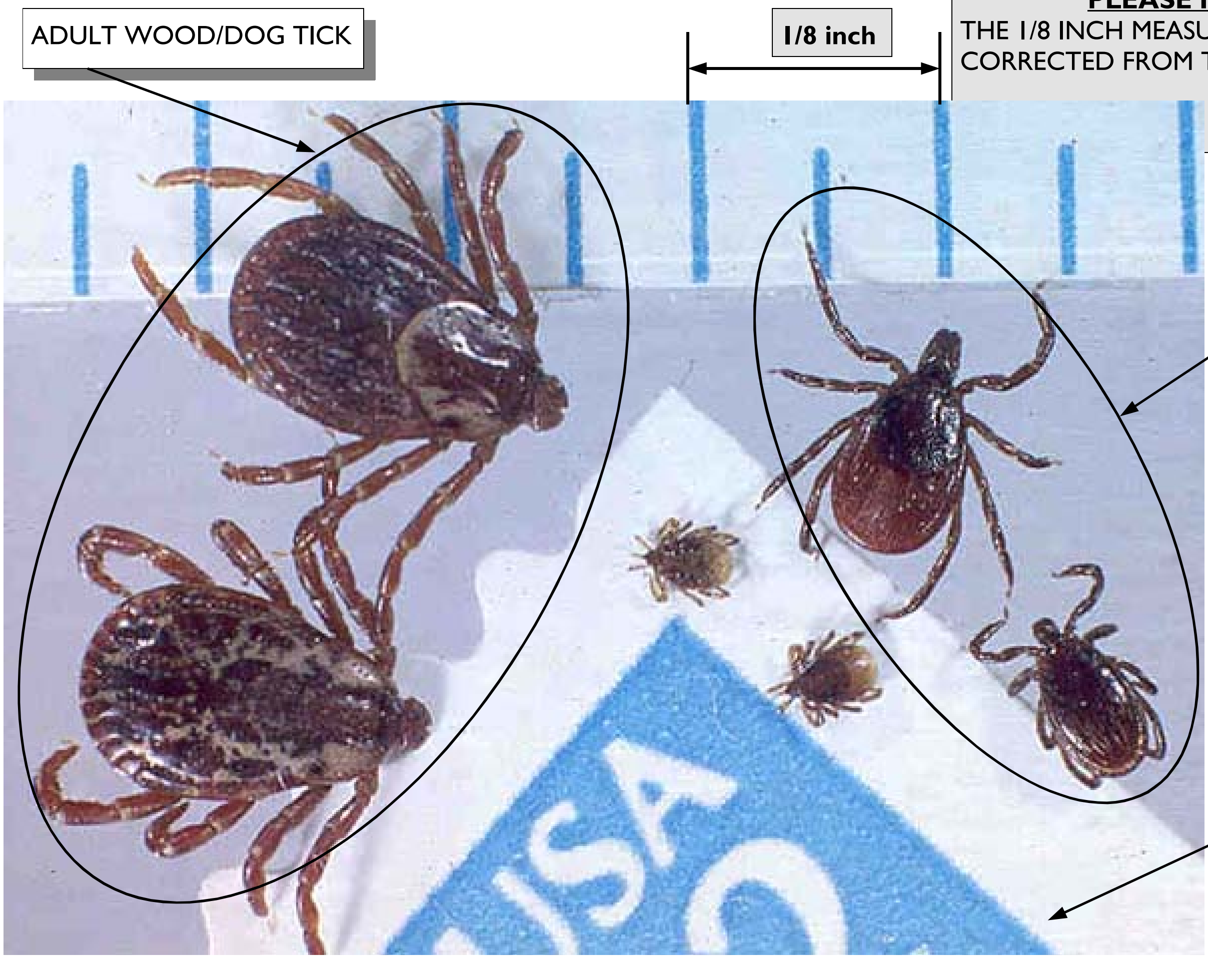
bodied animal. The life cycle of deer ticks is therefore intricately tied to deer, mice, and other wildlife, which can cause a fluctuation in the presence of Lyme disease. For example, one year we may have a banner acorn crop, allowing the mice to feast like kings all summer. This ensures that the tick larvae will have plenty of hosts, causing an outbreak in Lyme disease the following year.

Lyme disease is named after Lyme, Connecticut, where it was discovered. An unusual outbreak of arthritis in children led to the detection of the disease in 1975, and identification of the bacteria that causes the disease in 1982. When caught early, Lyme can often be treated with antibiotics (to kill the bacteria). Symptoms of Lyme disease include a bull's eye rash (see image to left), joint aches, headaches, fever, Bell's palsy (paralysis on one side of the face), confusion, and exhaustion.

This is a very important issue that Mainers need to stay informed about. At the DNR lecture, "Tick Talk," on July 26th at 6:00 Dr. Szantyr will be coming from Lincoln to provide us with information on Lyme disease in Maine. She will have a 45 minute discussion on lyme prevalence and prevention in Maine, and her display includes educational pamphlets as well as hands-on ticks, tweezers and repellents. It will be a fun and informative evening, so mark your calendars!!

PLEASE NOTE:
THE 1/8 INCH MEASUREMENT IS CORRECTED FROM THE PREVIOUS PRINTING OF THIS ISSUE!



It's That Time of Year: Dragonfly Emergence

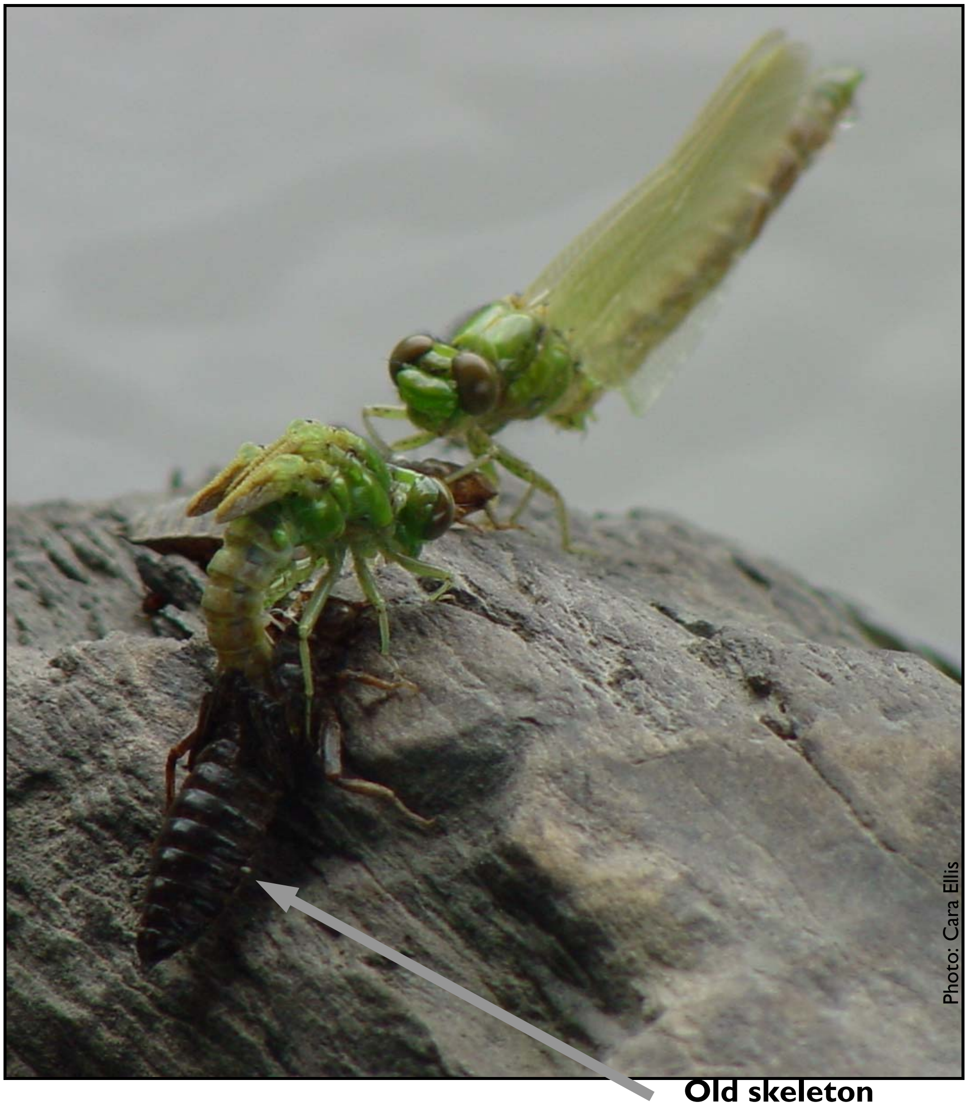
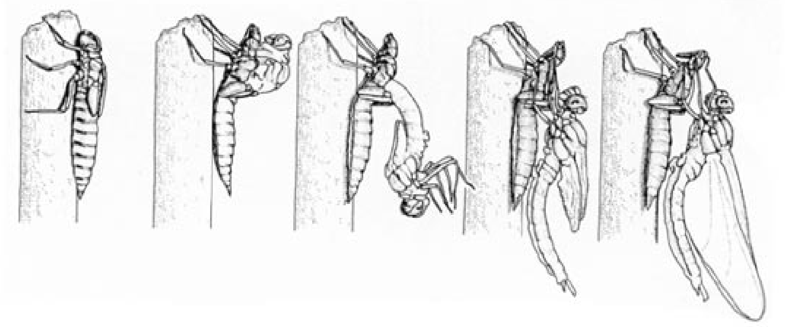


Photo: Cara Ellis

You have probably seen many adult forms of these guys already - dragonflies in many different sizes and color! Spring and summer is the time of year when these guys emerge from the water where they have lived in larval form for various amounts of time depending on the species - anywhere from one to several years. The picture to the right, taken near the Meduxnekeag River in Maliseet territory, is a great view into the process of change these beautiful creatures go through to become very skilled hunters. Notice that the one to the right has its wings more fully expanded than the one on the left whose wings are still tightly packed in the form that they were in when in the larval form.

This process of emerging from their old form to the new one can be as fast as one hour or take several hours. Once the new skeleton is fully developed, muscular contractions and intake of air cause the dragonfly's body to swell until the old skeleton splits open. The dragonfly breaks through the old skeleton and works its way out until just the end of the abdomen remains inside the old skeleton (see the diagram below). The dragonfly then flips itself upward via a maneuver that is similar to an upside down sit-up/stomach crunch. It grabs onto the old skeleton and pulls out the remainder of its abdomen. The wings, when the dragonfly first emerges, are shriveled and opaque. The wings are pumped full of fluid to expand them and when fully expanded, they harden and eventually become transparent.

There are 56 species of dragonflies documented in Maine, with new species potentially waiting to be seen. Factors contributing to wealth of Maine's dragonflies include the state's large size and its diversity of landforms and unspoiled wetland ecosystems. Additionally, Maine holds a unique geographic position, providing habitats for species with both boreal forest preferences and more southerly Appalachian and coastal plain associations. Lots of data and GREAT photos can be found on the Maine Dragonfly and Damselfly Survey website at: mdds.umf.maine.edu/



On this website you might be able to find some of the species that are seen around the Island. In last year's article (Issue 1 of Summer 2004) we highlighted the Twelve-spotted skimmer (latin name of *Libellula pulchella* - under the skimmer family Libellulidae) and got the image from this website. Both the male and female are very colorful so be on the lookout for them - and others!

Minimal Indoor Mold Problems in Penobscot Homes:

Air Quality Program Works to Maintain That Status

By: Eric Nicolar

In 2002, many Native communities across the country were experiencing significant levels of mold in homes; mostly due to poor planning and inadequate materials used during building phases. In some cases, highly toxic molds, such as black mold (*Stachbotrys chartarum)*, were being found and creating health problems in native households. The Penobscot Nation Air Program implemented a pilot scoping project to assess if mold was a problem on Indian Island as well. The project was budgeted for FY 2003 using $6000 of EPA funds from our Clean Air Act §103 grant money. Testing started during the summer of 2003. Residential testing was subsequently expanded to Penobscot homes within the local service area.

Initially homes were tested upon request of home occupants. As the original scoping study neared completion, the staff decided to continue monitoring on a priority basis to help residents pinpoint severe problem areas. We also wanted to expand the overall representative sampling of the Island to use for possible future funding requests. The criteria used to warrant testing was modified as a result. The results and future plans of the Indoor Mold Scoping Assessment and Indoor Ambient Continuation Project are discussed below.

Analysis Process

Indoor mold testing consists of monitoring three potential hot spot areas at a home using an *Aerotech™ Single-stage Impaction Monitor* <see photo below> using potato alger media plates <see: www.aerotechlabs.com/Aero/>. Ambient indoor air is passed through a multi-holed Teflon tube apparatus to garner a culture sample. The plates are then shipped rush order to a lab in Arizona, where a heat tempered acculturation process measures for 33 different mold types. Categories include soil, vegetative, toxin and anti-toxin mold sporages. Results are generally returned to us for inter-departmental analysis 10 to 14 days after monitor testing. We then write a detailed evaluation and offer possible remediation or preventative recommendations to the homeowner. Monitoring and analysis are the only functions covered by the Air staff. The Air Quality Manager, Eric Nicolar, has attended various training seminars, and keeps updated on indoor mold science and trends, to provide technical analysis and evaluation of indoor mold issues. Since coming aboard, Air Quality Technician William Thompson has also been trained, and has become acclimated on indoor mold media as well. As a result, we provide information based on generally accepted principles of indoor mold issues. Further remediation has to be done by an appropriate authority though, usually through the help of the Housing Authority, and the Air staff is more than happy to direct residents to alternative resources. We will advocate for people who request our support.

PIN AIR QUALITY PROGRAM ASSESSED A LARGE PERCENTAGE OF RESIDENTIAL HOMES IN THE COMMUNITY

Indian Island Assessment

Since 2003, 39 homes have been tested, including both Down Street homes and HUD houses in all phases. Four off-Island homes have been tested. The 35 homes on the Island represented 25% of the total units. The Health Center, Daycare, Human Services, and Community Building facilities were also tested at some point over the past two years. The 25% of residential represents a larger percentage of overall units than most other Native communities have had the ability and expertise to monitor. Surprisingly, we found there is no widespread pattern of indoor mold on Indian Island. The staff thought we would initially find higher levels of mold counts based on our being a river tribe with the slow running drainage patterns. The few cases that were problematic were the result of broken water pipes that

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weren't properly fixed and had leaked for extended periods. Units with moderately high mold counts were usually the result of soil and vegetative piles existing in basements. Another problem area is the use of plastic sheets being laid down as liners. Molds result from the right combination of moisture and temperature. If the moisture underneath these liners doesn't evaporate, different molds can grow. In many cases water had seeped into areas and developed mildew odors. Mildew is a precursor for mold but doesn't pose the same health threats that widespread molds can.

RISK TO PEOPLE

- Persons with allergies or asthma may react to the presence of any mold
- Infants and young children, individuals with reduced immune function and people with pre-existing lung disorders may have a more severe reaction to infectious or toxic molds
- Maintenance, renovation, and agricultural workers may experience very high exposures during disturbance of contaminated building surfaces

As the project funding ran down, the staff implemented a priority system to determine if lab analysis testing was warranted. If units had minimal mold signals, we would generally proffer remediation advice and materials first off, with a standing offer to test if these trace elements worsened over time. Units that had visibly significant levels of mold were asked to remediate beforehand and then a post-remediation analysis would be performed. This priority system resulted in a more efficient use of Air resources. Since FY2003, we have had to use other § 103 funds to service our population based on need.

Health Issues

Many residents that requested testing expressed they felt that mold was potentially causing existing adverse health conditions. Who Is At Risk? Persons with allergies or asthma may react to the presence of any mold. Infants and young children, individuals with reduced immune function, or those with pre-existing lung disorders, may have a more severe reaction to infectious or toxic molds. Maintenance, renovation, and agricultural workers may experience very high exposures during disturbance of contaminated building surfaces. Certain highly toxic molds can cause health pathologies, but we have found no presence of these types in any Island residence or administrative building that we've tested. In any case, there is insufficient research at this time to establish "safe" or no-effect exposure levels for the toxigenic molds. The soil and vegetative types commonly found on the Island can worsen existing respiratory ailments but cannot cause them unless found at extremely high levels. We found no such extreme levels of these mold types that would warrant emergency action.

We also found that once residents were educated more on the complexities of indoor mold, they were more satisfied with the results they received and the remediation plans we presented them. If any Penobscot wants further information, regardless if we test or not, we can provide informational materials and provide other resources. If you do have specific health concerns, we will specifically ask that you contact your health care provider, because we do not make medical diagnosis or offer any treatments. In the past, we have had health professionals follow up with us on household conditions and test results. Residents can rest assured that we maintain the same stringent rules of confidentiality that all other departments uphold.

Inter-tribal Cooperation, Assessments, & Conclusion

As part of the our EPA Region I Air Quality Model Program status, we have provided inter-tribal training, conferencing, information sessions, and equipment loans to some of the other Wabanaki tribes. During these exchanges, we have found that there are indeed some significant mold problems at some of the other reservations. Based on our assessments, it is our goal to provide our residents with timely inspections, information, and resources so that our community doesn't experience some of the conditions we've seen elsewhere. We hope to prevent indoor molds from becoming a problem for our people. We've also dedicated our resources and expertise to help other Native people. Currently there are no funds for mold testing. Based on this ultimate mission though, we hope to maintain some level of an indoor mold component as part of the Air Quality Program here at the Nation for the future.

Photo: Martin Neptune

Pəskehtəkʷok

Joining of the Branches

Summer 2005 ~ Issue 2

Penobscot Indian Nation
Department of Natural Resources

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Binke Wang, *GIS Specialist*	7341
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Brown Ash Trees Welcomed to the Community

Back in the middle of June the DNR Building got a welcome new member added to the indigenous plant demonstration that landscapes the perimeter. Brown Ash trees were planted in a collaborative effort between the Penobscot Nation Boys and Girls Club and SeedTree (www.seedtree.org). Shannon Post of SeedTree brought the saplings that were donated by Fedco.

Roger Paul gave a cultural introduction to the program, teaching some pertinent words and phrases in Penobscot and acknowledging the vital importance of the brown ash (basket-making tree) in the economic and cultural traditions of the Wabanaki. Carol Kinsey thanked all for their welcome and good-spirited participation.

Showing a Penobscot sweetgrass and brown ash basket, shaped like an acorn, Carol told how SeedTree, working to renew ecosystems through human ecology, had chosen to identify with the acorn. If something as strong as an oak tree can come from something small as an acorn, we can have similar faith that a great good can grow -at least in our hearts- from any small "seed deed" such as this planting of trees together. Roger Paul told also how gratitude is an essential tradition of the Wabanaki people, particularly gratitude to our mother earth from whom all living beings are born and nourished. Tobacco leaf was ceremonially offered to the earth as Roger led a prayer of thanks in Penobscot. Everyone then joined in planting the trees.

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Community members that were present for the planting include:

Roger Paul
Jasmine Thompson
Bill Thompson
Leigh Neptune
Claudia Cummings
Megan Loring
Gabe Paul

Jasmine's favorite part of the afternoon was "putting the trees in the ground" because she was honored to be helping to "make another generation of them."

It has been thought that populations of Brown ash, *Fraxinus nigra,* a species needing moist soil, have been suffering in Maine. In a 1993 survey, the Maine Forest Service found that more than 30% of brown ash trees studied had suffered more than 80 percent dieback. The Service concluded that "brown ash in Maine has been and continues to be in a state of severe decline throughout the state."

William Livingston, Chairperson & Associate Professor of Forest Resources at University of Maine, says that "basketmakers first noticed in the late 1980s that branches on many brown ash trees had died" and that "they are very concerned about the health of the brown ash because the brittle wood from unhealthy trees cannot be used for making baskets." (1995 Article in Science and Engineering News ,University of Maine) In response, UMaine researchers developed a cooperative research program with the Forest Service and the Maine Indian Basketmakers Alliance. The Service selected 22 trees to study at each of six sites located in central, Downeast and northern Maine where information was also available on weather and streamflow.

Although the mystery of what caused the dieback was not completely solved, the project showed that:
for the last century, brown ash stands have gone through numerous episodes of decline, most notably in the '20s, '50s and '70s;

- the most recent decline is more extensive than previous episodes and began in 1985 in central Maine and spread north in 1987;
- insect and microbial pests, air pollution and pesticides have been ruled out as the cause of such a statewide phenomenon;
- the most likely causes are weather related and include spring droughts and excessively wet winter conditions followed immediately by freezing temperatures;
- ironically, dieback is more extensive in larger trees on wetter sites, while trees on drier sites had few symptoms;
- tree rings from the past several years show the beginnings of recovery.

In general, brown ash tends to grow slowly in swampy areas and along riverbanks. It does not compete well against faster growing species on drier land and makes up less than one percent of the Maine forest. A denizen of the far north, brown ash does well in Quebec where little decline has been reported. (Dieback has been reported in New Brunswick.)

"In 2000 Forest Health and Monitoring staff re-measured nearly half of the brown ash plots which were originally established in 1992 to assess this decline. A subset of 12 of the established plots had been re-measured in 1996 and 1997 but 2000 was the largest re-measurement since 1995 when 36 plots were assessed.

While ash anthracnose caused defoliation in some plots, and led to higher than expected crown transparency readings, the overall conclusion from the 2000 brown ash survey is that plot trees have recovered and continue to rebuild their crowns after the profound decline of the late '80s." (Dearborn, Richard, and Clark Granger. 2001. Forest and Shade Tree Insect and Disease Conditions for Maine - A Summary of the 2000 Situation. The Maine Forest Service, Department of Conservation, Summary Report No. 15. 66p.)

At present, planning is under way at PIN to do more of the enrichment plantings started by the Boys and Girls Club. The hope is to plant brown ash on other tribal lands and islands in the Penobscot River.

Something To Think About: God's perspective on mowing the lawn

GOD: Frank, you know all about gardens and nature. What in the world is going on down there on the planet? What happened to the dandelions, violets, thistle and stuff I started eons ago? I had a perfect, no-maintenance garden plan. Those plants grow in any type of soil, withstand drought and multiply with abandon. The nectar from the long lasting blossoms attracts butterflies, honey bees and flocks of songbirds. I expected to see a vast garden of colors by now. But all I see are these green rectangles.

ST. FRANCIS: It's the people that settled there, Lord. The Suburbanites. They started calling your flowers "weeds" and went to great lengths to kill them and replace them with grass.

GOD: Grass? But it's so boring. It's not colorful. It doesn't attract butterflies, birds and bees, only grubs and sod worms. It's sensitive to temperatures. Do these Suburbanites really want all that grass growing there?

ST. FRANCIS: Apparently so, Lord. They go to great pains to grow it and keep it green. They begin each spring by fertilizing grass and poisoning any other plant that crops up in the lawn.

GOD: The spring rains and warm weather probably make grass grow really fast. That must make the Suburbanites happy.

ST. FRANCIS: Apparently not, Lord. As soon as it grows a little, they cut it -- sometimes twice a week.

GOD: They cut it? Do they then bail it like hay?

ST. FRANCIS: Not exactly, Lord. Most of them rake it up and put it in bags.

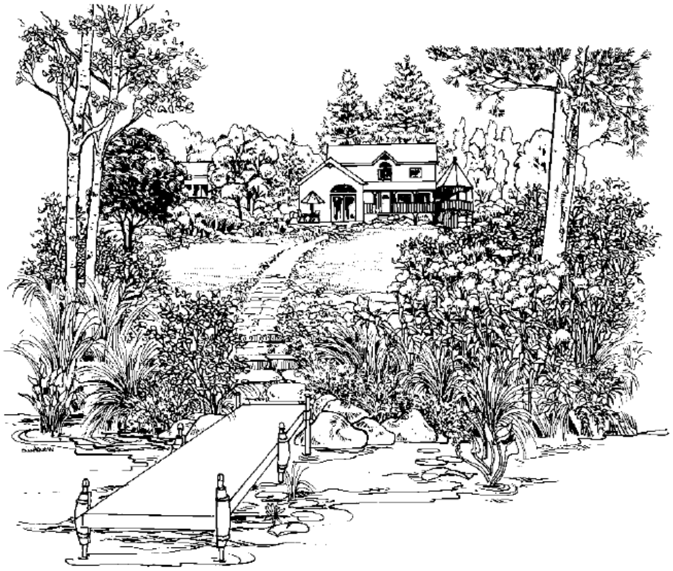
GOD: They bag it? Why? Is it a cash crop? Do they sell it?

ST. FRANCIS: No, Sir. Just the opposite. They pay to throw it away.

GOD: Now let me get this straight. They fertilize grass so it will grow. And when it does grow, they cut it off and pay to throw it away?

ST. FRANCIS: Yes, Sir.

GOD: These Suburbanites must be relieved in the summer when we cut back on the rain and turn up the heat. That surely slows the growth and saves them a lot of work.



ST. FRANCIS: You aren't going to believe this Lord. When the grass stops growing so fast, they drag out hoses and pay more money to water it so they can continue to mow it and pay to get rid of it.

GOD: What nonsense. At least they kept some of the trees. That was a sheer stroke of genius, if I do say so myself. The trees grow leaves in the spring to provide beauty and shade in the summer. In the autumn leaves fall to the ground and form a natural blanket to keep moisture in the soil and protect the trees and bushes. Plus, as they rot, the leaves form compost to enhance the soil. It's a natural circle of life.

ST. FRANCIS: You better sit down, Lord. The Suburbanites have drawn a new circle. As soon as the leaves fall, they rake them into great piles and pay to have them hauled away.

GOD: No fooling? What do they do to protect the shrub and tree roots in the winter and to keep the soil moist and loose?

ST. FRANCIS: After throwing away the leaves, they go out and buy something which they call mulch. They haul it home and spread it around in place of the leaves.

GOD: And where do they get this mulch?

ST. FRANCIS: They cut down trees and grind them up to make the mulch.

GOD: Enough. I don't want to think about this anymore. St. Catherine, you're in charge of the arts. What movie have you scheduled for us tonight?

ST. CATHERINE: "Dumb and Dumber," Lord. It's a really stupid movie about....

GOD: Never mind. I think I just heard the whole story from St. Francis.

EPA's Cap-and-Trade Plan for Mercury Fails to Protect Public Health

Conservation groups file lawsuit in federal court over Clean Air Act violations

Washington, D.C.—Conservation groups filed litigation today challenging the Environmental Protection Agency's weak rule establishing a cap-and-trade system for mercury reductions. A cap-and-trade system not only increases mercury levels in some areas by creating mercury "hotspots," it also falls far short of mercury reductions originally mandated under the Clean Air Act, which EPA has decided to ignore.

National Wildlife Federation (NWF), Environmental Defense and Sierra Club, represented by Earthjustice, filed their challenge in the U.S. Court of Appeals for the District of Columbia Circuit (Docket #05-1267). The Chesapeake Bay Foundation and Waterkeeper Alliance are also joining the suit. The cap-and-trade rule creates a mercury trading market where plants can trade credits, avoiding overall reductions and increasing mercury levels in some areas.

For instance, Texas power plants currently release some 10,000 pounds of mercury each year. Under the EPA's proposed cap-and-trade system, Texas will be required to reduce its mercury output from 2010-2017 to 9,314 pounds annually. This meager 7 percent reduction will do little to attack the threat of mercury contamination in the state's waterways and lakes. Three of Texas' coal-burning power plants are among the top 15 highest mercury emitters in the country. Under EPA's rule, two of these plants—Martin Lake and Limestone—could actually increase their overall mercury emissions through 2017.

"Texas is the perfect example manifesting how flawed EPA's approach at mercury reduction really is," said Dr. Ramon Alvarez, a scientist with the Texas office of Environmental Defense. "Our state has the highest mercury pollution levels in the country, but EPA is allowing some of the dirtiest plants to increase their pollution. This is not environmental protection. It is a windfall for polluters and a threat to those most susceptible to mercury poisoning."

But the mercury problem is not exclusive to Texas. The entire Chesapeake Bay Region is a huge mercury hotspot. Maryland, Virginia and Pennsylvania—states bordering this natural treasure in which the fisheries industry plays a huge economic role—all have fish consumption advisories for mercury. According to a 2004 study conducted by the National Oceanic and Atmospheric Administration, sources within 60 miles of the Bay contribute more mercury to the Bay than distant sources. Power plants like Constellation's Brandon Shores Plant in Maryland, Reliant Energy's Keystone Power Plant in Pennsylvania and the Chesapeake Energy Center in Virginia will be allowed to continue emitting mercury and contaminating fish populations throughout the Bay.

Forty-five states have advisories against fish consumption due to mercury contamination. Waterbodies such as the Chesapeake Bay experience unhealthy levels of mercury, limiting fishing and other recreational activities. Mercury is a dangerous neurotoxin found to stall the development of children's brains, both in and out of the womb. Every year an estimated 630,000 babies are born in America with unsafe levels of mercury in their blood.

"I plan to have children in the next two years and I eat fish from the Chesapeake Bay region," said Ally Gontang, an employee and member of the Chesapeake Bay Foundation. "However, I have had my hair tested for mercury and my level is above EPA's alert for women of childbearing years. My fiancé and I are both saddened by and mad at EPA's actions."

Power plants are, collectively, the worst toxic emitters in the country. They spew 40% of all mercury emissions, or roughly 48 tons of mercury each year. Over 1100 coal-fired electric generating units at 450 power plants nationwide are affected by this rule. While this rule is a weak attempt at mercury reductions, it provides no emission limits for other power plant pollutants like arsenic, lead and chromium. Power plants collectively emit more than 70 tons of arsenic and 80 tons each of lead and chromium annually.

For those who rely on subsistence fishing, EPA's rule is a travesty, avoiding mercury reductions on rivers and lakes that sustain food supplies for many people. "EPA's rule is an assault on our tribal people and culture," stated Eric Nicolar, the Air Quality Manager for the Penobscot Indian Nation within Maine. "Our 1,100 members are being forced to subsist on mercury-laden fish taken from the Penobscot River everyday. Under EPA's illegal cap and trade scheme, the Ohio Valley coal-fired power plants will be free to poison our sacred waterways with mercury for many more years to come."

Although the cap-and-trade rule may provide some limits on mercury emissions, the rule will not take full effect until 2018, providing a much lower emissions standard than what is required under the Clean Air Act. Litigation challenging the cap-and-trade rule will not slow any mercury reductions, but rather could defeat a weak rule that already allows for much longer mercury attainment goals than those already required by the Clean Air Act. EPA incorrectly assumes that mercury reductions could result from other pollution controls required by separate regulations. These reductions will not come near what could have been as the result of a strong mercury reduction rule.

This lawsuit, as well as litigation filed May 18 challenging another portion of EPA's power plant rule, challenges EPA to develop emission standards that offer protections we all deserve. Eight other conservation groups and 13 states have also filed litigation challenging EPA's weak rule.

For more information on Texas power plants, visit
www.environmentaldefense.org/go/texasmercury.
Additional information on mercury contamination in the
Chesapeake Bay can be found at www.cbf.org.

NOTICE:
West Old Town Landfill Air Emissions License Proposal

From: Eric Nicolar
To: Indian Island Community

Dear Community Members,

An air emissions license is being proposed by Casella Waste Systems Inc. for the West Old Town landfill (WOTL). The staff at the Air Program will be doing a thorough technical review and research to evaluate the amount of air emissions being emitted, the type of controls for the proposed level of expansion, and the impact on the population and environment. Our focus will include tribal lands, the Penobscot River air shed, and other local and regional transport issues. Odors and other nuisance permit conditions should be included in the draft license. We will be making ourselves available to answer questions and research specific requests about the impacts of the WOTL, while we develop public comments for the tribe. **If the interest is large enough, we would also like to hold a public hearing so that we can keep our people as informed as possible.**

The expansion of the landfill will generally affect us all in some way or another.
We hope that you take this opportunity to seek answers to your questions and concerns.
Our phone numbers are:
Air Manager, Eric Nicolar 817-7336
Air Technician, William Thompson 817-7340

PLEASE STAY TUNED

This photo is just the beginning of more information to come!

As you can see, Joe "Hugga" Dana is pictured here with a fine Striped bass. He caught this beauty on one of his recent evening fishing trips in the Bangor-Brewer section of the lower Penobscot River. And this one was brought home to feed his family!

We are thrilled to have Hugga approach us about putting an article in the newsletter about “Stripers.” So please stay tuned!!! In a future issue of the DNR newsletter we will be doing just that! The article will include lots of information including their life history, where are they in the Penobscot River, and how the Penobscot River Restoration Project will affect them.

Pəskehtəkʷok

Joining of the Branches

Photo: Martin Neptune

Summer 2005 ~ Issue 3

Penobscot Indian Nation
Department of Natural Resources

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Why Worry About Watersheds

Why does it matter that many paper mills put toxins in the Penobscot River miles north of Indian Island? Would it matter if farmers up on the Piscataquis River were using excessive amounts of fertilizer on their fields and did not adequately prevent runoff? What if the HoltraChem plant had been in Passadumkeag and all of the mercury contamination was in the sediments there?

The answer to all of these questions, and many other similar ones you might come up with, is that these issues matter because they all occur in the Penobscot River watershed. But what is a watershed, you ask? That is a great question - the answer to which we hear VERY LITTLE about in our education and daily experience. When was the last time you saw watershed boundaries on a Delorme map? How often does the news talk about the watershed in which an event took place? The general public rarely even talks about rivers, say nothing about their watersheds. We hope this article will help you to better understand what a watershed is and their importance.

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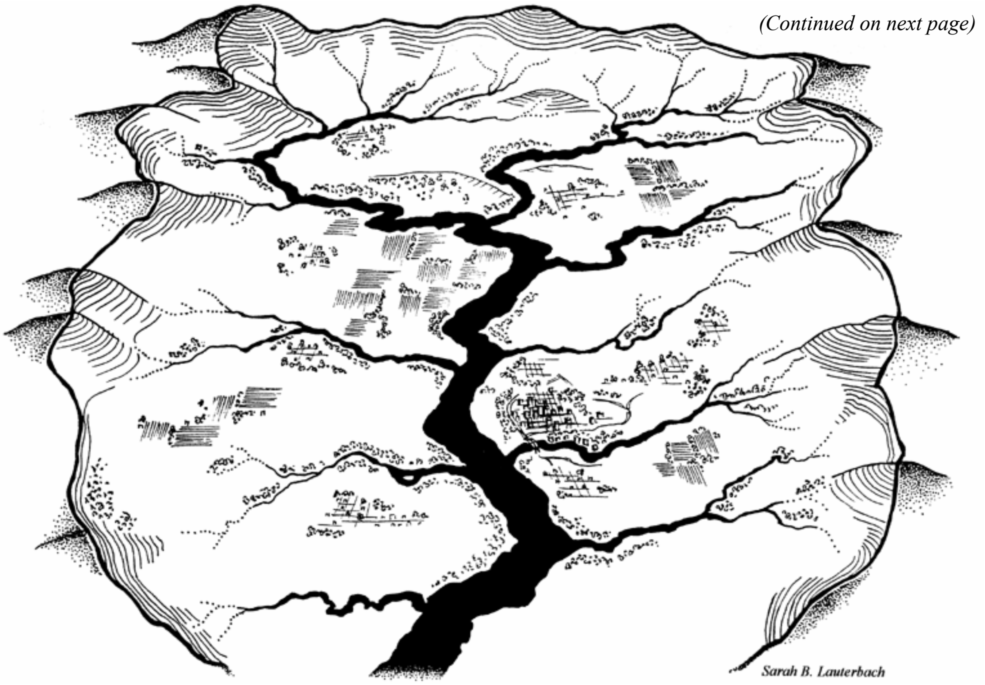

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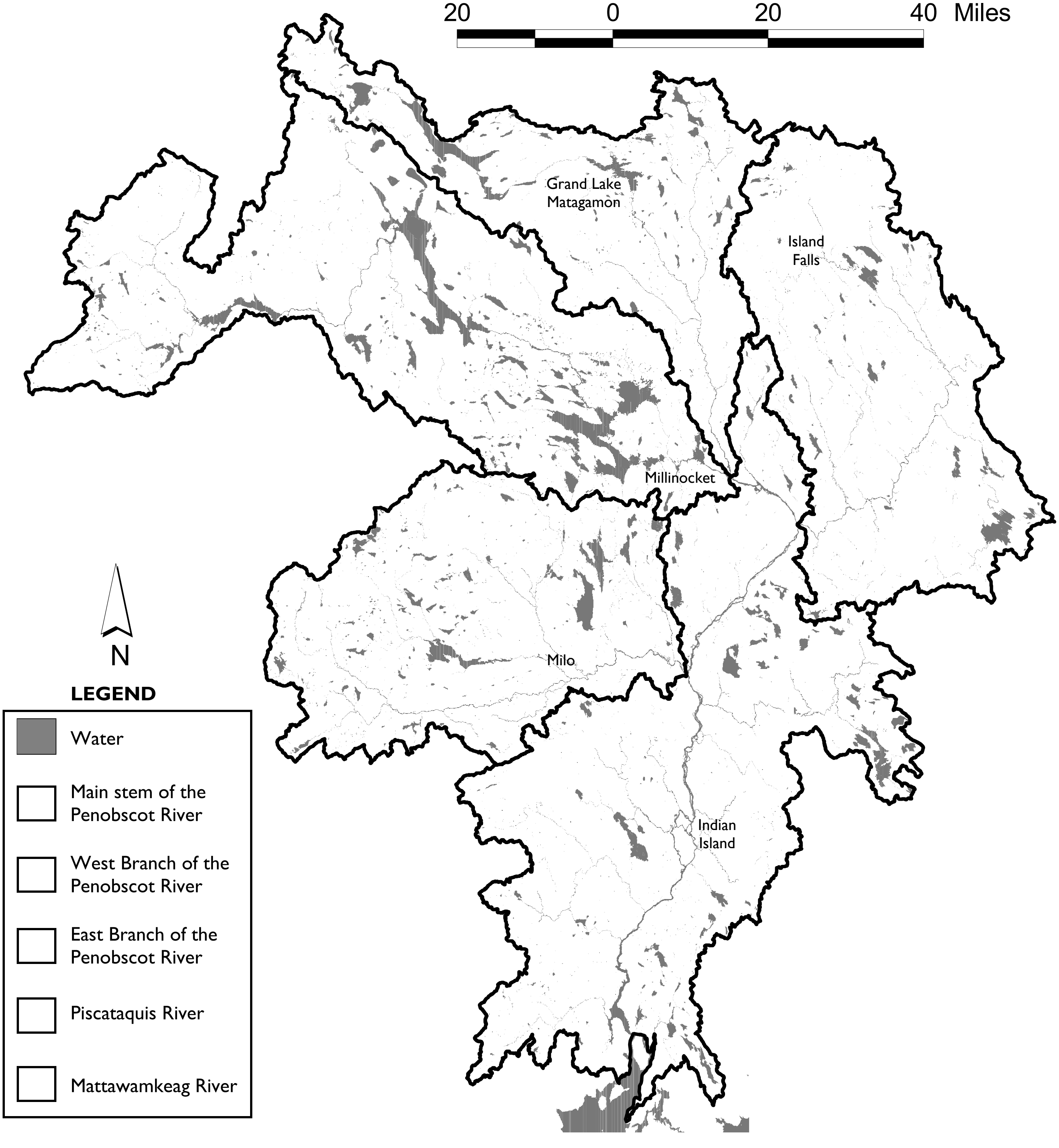

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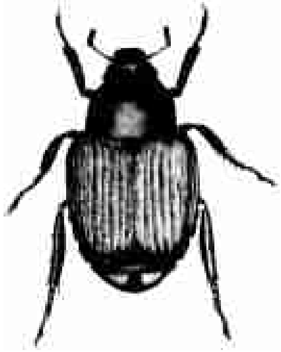

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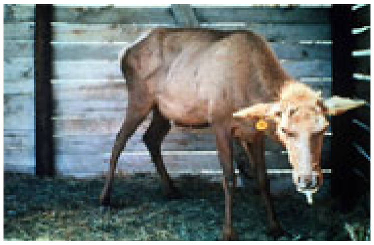

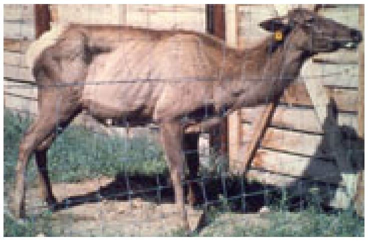

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817-7363
kdilworth@penobscotnation.org

Photo: Martin Neptune

Pəskehtəkʷok
Joining of the Branches

Summer 2005 ~ Issue 3b

Penobscot Indian Nation
Department of Natural Resources

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Ron Bear, *Forest Technician*	*7335*
John Banks, *DNR Director*	*7330*
Rhonda Daigle, *Water Quality Monitoring Program Coordinator*	*7326*
Kristin Dilworth, *Big Game Biologist*	*7363*
Clem Fay, *Fisheries Manager*	*7362*
Yvonne "Cookie" Francis, *Administrative Assistant*	*7331*
Tim Gould, *Game Warden Supervisor*	*7395*
Dan Kusnierz, *Water Resources Program Manager*	*7361*
Frank Loring, *Game Warden*	*7392*
Josh Loring, *Game Warden*	*7392*
Jason Mitchell, *Water Resources Field Coordinator*	*7381*
Eric Nicolar, *Air Quality Manager*	*7336*
Jim Pardilla, *Game Warden*	*7392*
Ed Paul, *Game Warden*	*7392*
Jan Paul, *Water Resources Field and Lab Technician*	*7382*
Angie Reed, *Water Resources Planner*	*7360*
Russ Roy, *Forest Manager*	*7339*
Dennis Stevens, *Forester*	*7337*
Bill Thompson, *Air Technician*	*7340*
Binke Wang, *GIS Specialist*	*7341*
Water Resources Trainees	*7381*

Why Worry About Watersheds

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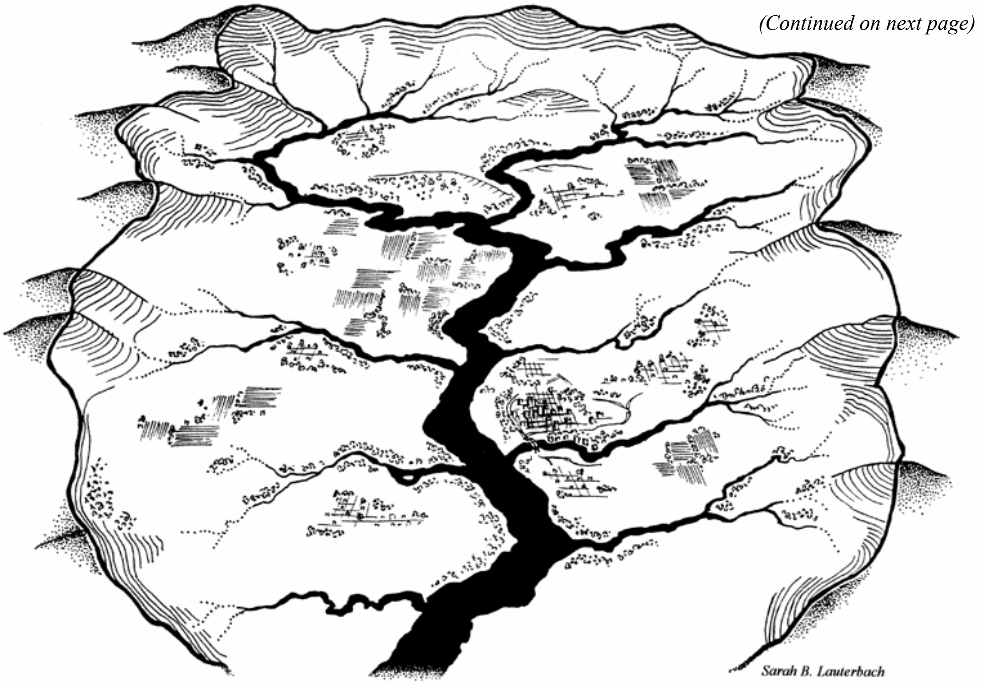
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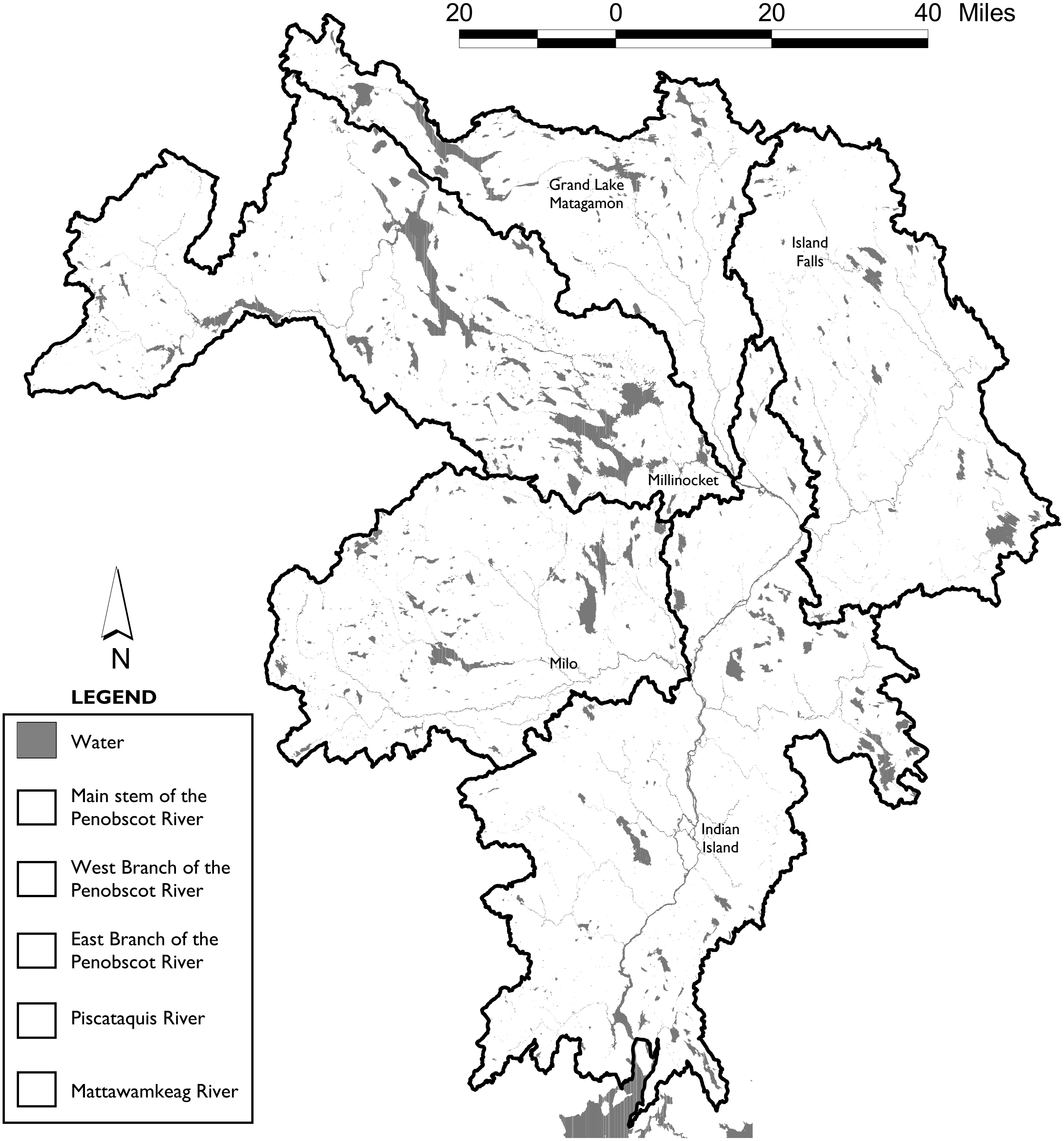

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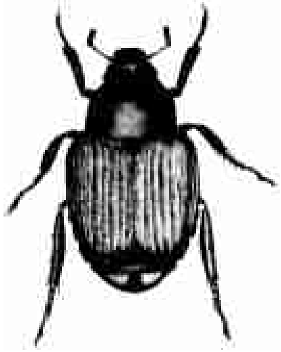

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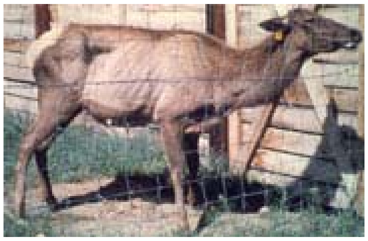

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Did you get them right? Check your answers!

For all of the 6th, 7th or 8th graders - this is the page with the answers to your homework assignment. Hope you did well!

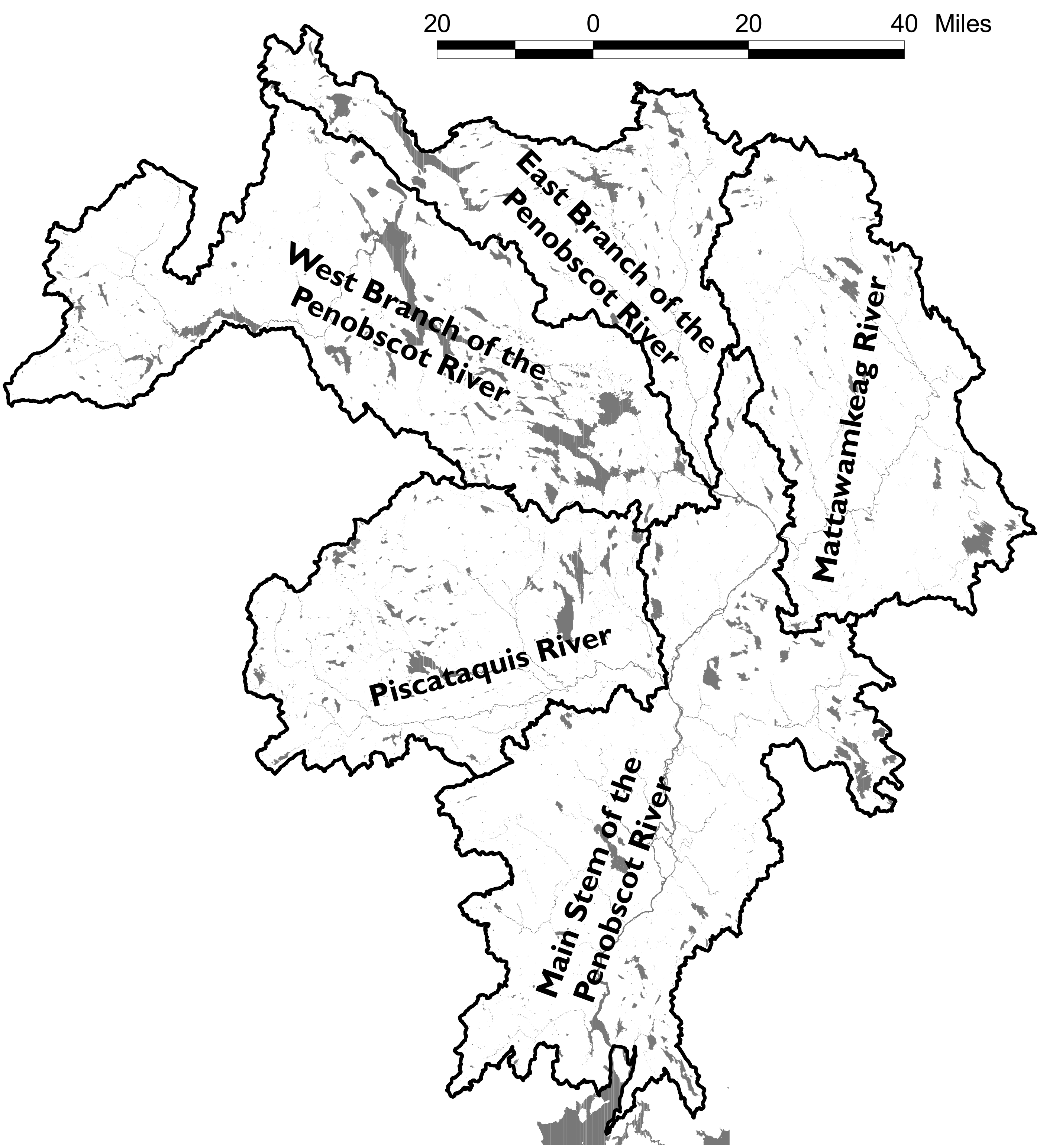
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Photo: Martin Neptune

Pəskehtəkʷok

Joining of the Branches

Fall 2005 ~ Issue 1

Penobscot Indian Nation
Department of Natural Resources

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~ Safe Journey, Clem ~

You will be missed.

On Sunday, October 16th, Clem Fay was out walking with Sydney and suffered cardiac arrest. Sydney, the ever-faithful companion, sat with her friend through his last moments. Staff at the DNR are still finding it hard to believe that the PIN Fisheries Program will never again have Clem Fay at the helm. He dedicated more than 17 years of his life and career to working here and made many significant contributions to the health of the Penobscot River and the fish who live in the waters.

Clem's passion for fishing was the foundation for his deep commitment to making the rivers they call home healthier and more accessible. For starters, we wanted to dedicate space in this issue to pictures of Clem in action and a brief introduction to his time spent with Penobscot Nation. More details about his life and career will follow in future

(Continued on next page)

Clem and Sydney checking fish at the West Enfield hatchery.

(Continued from previous page)

newsletters.

Clem Started with PIN/DNR in May, 1988 as the Fisheries Development Specialist. He developed the program from scratch and was the first Fisheries Program Manager for PIN. In his position, Clem represented PIN fisheries issues when working with other state, federal, and tribal governments. A few of the places he focused his efforts included being a member of:

- the TAC (Technical Advisory Committee) of the Atlantic Salmon Commission,
- the Biological Review Team for the Atlantic Salmon ESA (Endangered Species Act) listing process, and
- the Fisheries Committee for the Penobscot Partners and their work on dam removal (PRRP).

As you can see, Clem was well respected and known for his outstanding professionalism in the fisheries field.

In addition to the more technical and intense part of Clem's job, he also made time for the children of the Penobscot community. Beginning in the 1994-1995 school year, Clem started the Salmon Incubation Tank Program at the Indian Island School. He was the local coordinator for the program that was co-sponsored by the U. S. Fish and Wildlife Service and the Atlantic Salmon Federation. The program involves the 5th Grade class caring for 200-300 Penobscot Atlantic salmon eggs in a 30-gallon aquarium housed in the classroom. Over the course of the school year the program includes several specific events, including:

- Visiting the Craig Brook National Fish Hatchery in Orland in early November to watch biologists obtaining the eggs and milt from the large adult salmon brought to the hatchery each year from the Veazie Dam fish trap on the Penobscot River,
- Setting up the incubation tank in January and getting the "eyed" salmon eggs delivered,
- Clem visiting the classroom and helping the kids to watch the development of the young hatchling salmon under a special "microvideo" camera,
- Working with the Water Resources staff on identifying aquatic insects,
- Releasing the 1 inch long salmon fry in a local stream and seeing the habitat that salmon need (and getting eaten alive by those hungry spring mosquitoes!).

In the Spring 2004 Issue 2 of this newsletter, Clem described this work with the kids as "the most enjoyable and rewarding."

All those who had a chance to know and work with Clem got to experience a man who always stood true to his values and beliefs and focused his energies toward making a difference in the world according to them. That is a difficult road to walk and something from which we can all get some inspiration.

Our best to you on your next journey, Clem. You will always be in our thoughts.

Clem with the 2003-2004 5th grade class and USFWS on their trip to the hatchery.

The Many Cases of Caddisflies

Caddisflies are one of the most interesting types of insects that start their life in water. These critters go through a complete metamorphosis - or change from one form to another - by transforming from a larvae into an adult. In their larval stage they are very creative in the ways that they make their living. Their choices include:

- building nets to collect food and provide protection,
- constructing cases for protection and camouflage, or
- free-living.

NET SPINNERS

If you ever look closely into the water near the edge of a river or lake, you can often see their nets attached to rocks. Generally, there are three different kinds of nets.

1. Made with sand, plant material, and small pebbles. Larvae of the Hydropsychid family, for example, construct these nets in fast flowing water and generally on the upper surface or rocks (**see Figure 1**).

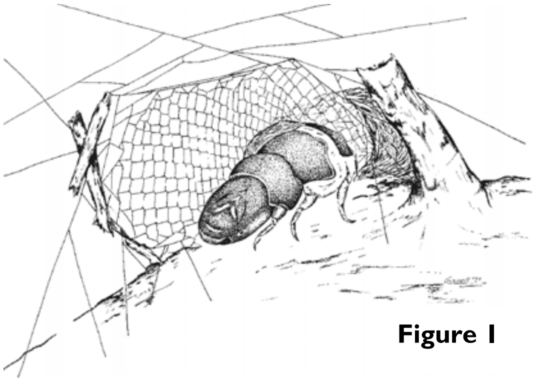
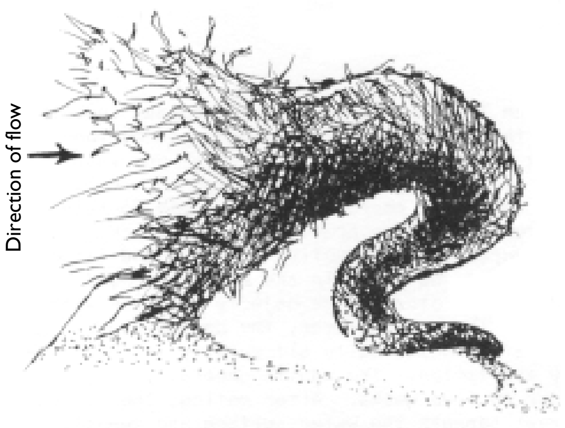


Figure 1

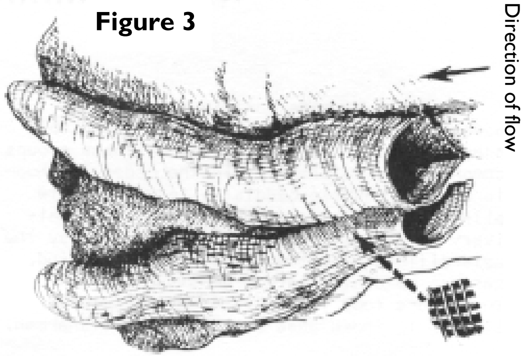
2. Long tube-like or trumpet-shaped nets. Larvae of the Polycentropid family build these nets in gently flowing areas of streams and rivers (**see Figure 2**). Some are put in the bottom sediments to filter out food material from water forced down the tube by the current.

Figure 2



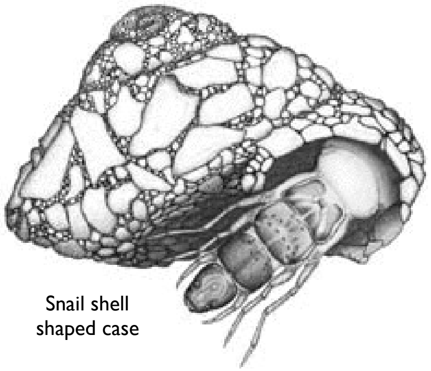
3. Made from over a kilometer (6/10th of a mile) of silk and incorporating millions of openings. The larvae of Philopotamid family build these nets on the underside of rocks in areas protected from the current (**see Figure 3**). Their nets are lightly fastened to the rocks by the front-ends so that they expand when the current flows through them.

Figure 3



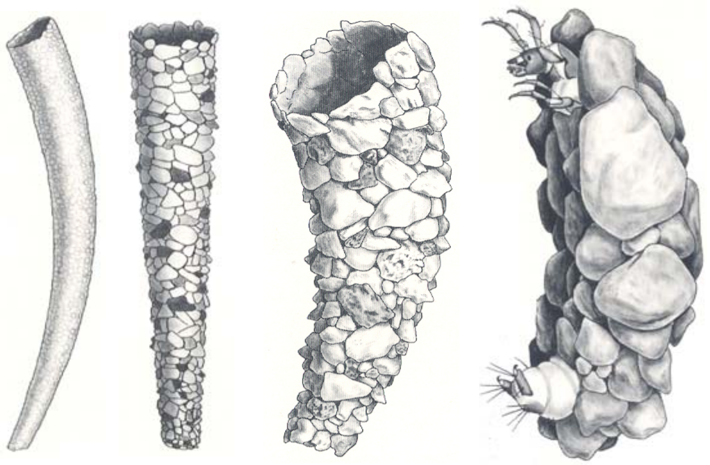
CASE-BUILDERS

Even more obvious than the nets are the MANY different kinds of cases that caddisflies build. Some of them are so big that you might think you were seeing things when you find yourself watching a bunch of sticks of walking around in the water. The cases are made from things like grains of sand, twigs, small pieces of bark or vegetation, or some combination of many or all of these materials. They also come in a bunch of different tubular shapes and some that look like snail shells.

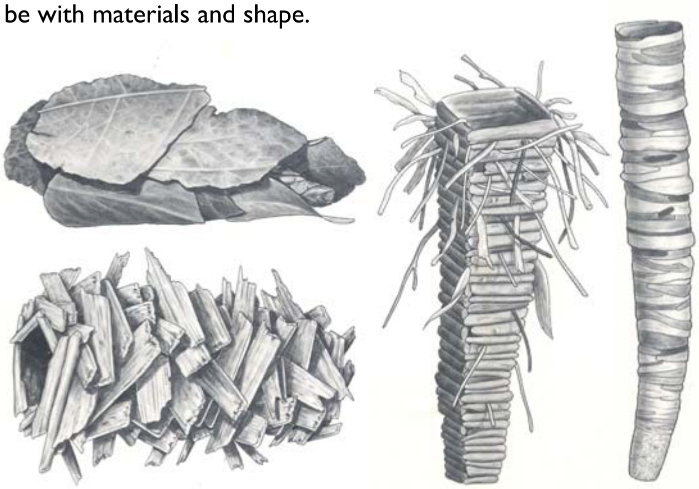


Snail shell
shaped case

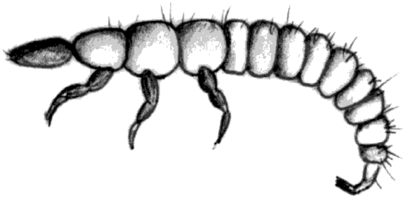
SAND GRAIN CASES - Here are examples of cases built with an increasing size of sand grain (left to right) and the various shapes in which they come. These pictures are not at all to scale so if you look for these in a stream they may be much smaller or bigger than you might imagine.



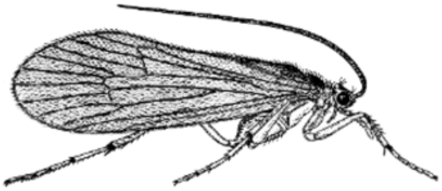
TWIGS AND VEGETATION CASES - These pictures are great examples of just how creative these critters can be with materials and shape.



FREE-LIVING - Of course we must remember that not all caddisflies live in a case. Some of those who are free-living look like this.



ADULTS - Last but not least, remember that these critters do change shape and become an insect who flies around in the air and lives on the land rather than the water. This is what they look like at that stage - they hold their wings in a tent-like way over their body. This is a very good way to tell them from either stoneflies who hold their wings flat on their body or mayflies who hold their wing upright and away from their body.



WATER QUALITY WITH BUGS

Because aquatic insects generally spend much of their lives in the water, they are exposed to a wide range of sources of pollution and other stresses. PIN Water Resources Program incorporates this biological response by taking samples of all kinds of aquatic insects living in the waters we monitor. The quality of the water can be described by knowing which kinds of insects are present and how many are there. This summer we took samples at 6 sites - 2 downstream of the Lincoln Paper and Tissue mill, 1 in the Medway impoundment downstream of Katahdin Paper mill (East Millinocket) on the West Branch, 2 in Alder Stream, and 1 in Little Alder Stream.

At each of the sites we put out 3 containers full of the same amount of rocks that are generally the same size. In Figure 4 you can see that each of these containers are located with a buoy so that we can more easily find them when it comes time to take them out. We use 3 containers at each site so that we can get a better idea of whether there is any variation in the insect community at that location. Without some measure of variation within a location we would not be able to describe the variation between locations.

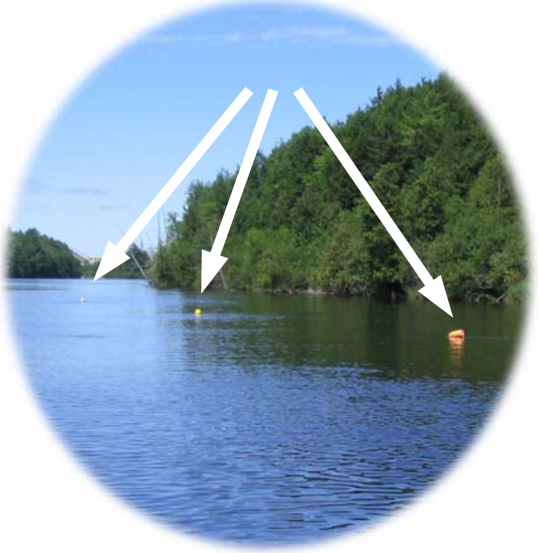


Figure 4: Arrows locating sampling containers at the Medway Impoundment.

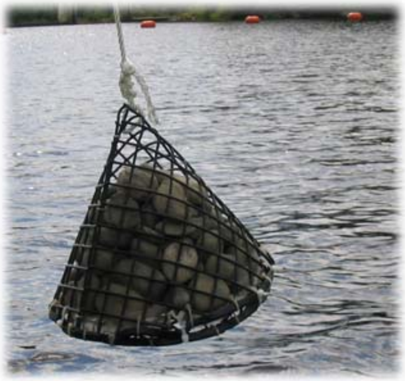


Figure 5: Cone-shaped container for deep sites.

For the deep sites we use a cone-shaped container (see Figure 5) and for the shallower sites we use a tube-shaped container (see Figure 6). For the very shallow sites we use a bag so that the rocks can be flattened out and kept wet the entire time. After sitting in the water for a month the containers are removed and all of the insects are taken for identification.

We have lots of preserved samples of these insects. So if you ever want to see some caddisflies, or other insects, please feel free to come to the office!

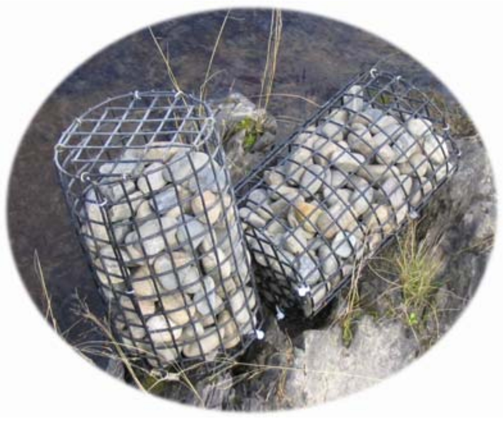


Figure 6: Tube-shaped container for shallower sites.

Photo: Martin Neptune

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HOW IS YOUR RIVER?

Students in the Indian Island middle school grades got a chance to begin answering this question in September. Through some hard work and lots of fun the students came to better understand the condition of their life source, the Penobscot River. A cooperative effort between the Water Resources Program, Native Studies class and the Game Wardens allowed the students to experience many aspects of what it takes to look after the Penobscot River. Lee Francis, Native Studies teacher, and Angie Reed, Water Resources Planner, were the primary organizers but they could not have pulled this off without the help of Dan Kusnierz, Jan Paul, Jason Mitchell, Rhonda Daigle and Jim Pardilla.

Back in the spring of this year Lee and Angie began discussing the possibility of this work. Together they developed three units, the first of which was this one focused on point-sources of pollution - which is pollution coming from one particular source, often out of the end of a pipe.

WATERSHEDS

To understand the reason why point sources of pollution are important to people living on Indian Island we had to talk about watersheds first. Because watersheds act like a bowl that collects the water flowing down hill and over the land, everything that happens upstream eventually flows by the Island. We used computer mapping technology to help the

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Can you identify the masked leader of these students who took over the Water Resources Laboratory?

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students visualize the boundary of the Penobscot River Watershed projected up on a screen and provided poster-size copies of the maps for their walls. They also had to use Issue 3 of the Summer 2005 DNR newsletter to complete their homework on watersheds.

POINT-SOURCES OF POLLUTION

From there we moved on to discussing two of the major types of point-source pollution - paper mills and wastewater treatment plants. We discussed our every-day connection to both of these facilities by talking about the images surrounding this text. Just like watersheds show us, we are all connected to everything else.

We used maps, again, to locate all of these pollution sources within the Penobscot River Watershed. And after getting to know where they were, we talked about the different kinds of things that each of them dump (discharge) into the river or one of its tributaries. Students learned that anyone who discharges waste into the river is required to have a permit that they meet and that it is illegal to put dioxins in the river - although the methods used to measure compliance may still allow it.

Since we couldn't easily measure some of the more nasty things, like dioxin or lead, in the classroom we decided to show the students how to sample for and analyze two other aspects of water quality.

TOTAL SUSPENDED SOLIDS (TSS)

These are pretty much what you might expect - pieces of material that, instead of dissolving in the water, remain solid and are floating around in the water column (suspended). These materials include fine pieces of bark, silt and clay particles, sewage, and algae. Higher concentrations of suspended solids can serve as carriers of toxics, which readily cling to suspended particles. They can also affect water clarity by: a) decreasing the passage of light through the water, slowing photosynthesis by aquatic plants and b) making the water heat up more rapidly and hold more heat, adversely affecting aquatic life that has needs cooler water.

On our day in the field, we all boated from the Indian Island landing up the Penobscot to a spot near the outflow of the PIN Wastewater Treatment Plant. Here everyone learned how to rinse the TSS sample bottle and collect a sample. Ask one of the students whether or not they are supposed to touch the inside of the bottle or cover while taking the sample!

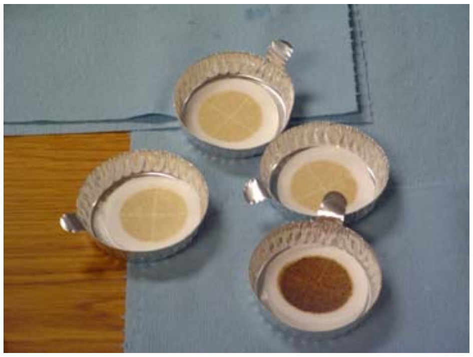
ESCHERICHIA COLI (FECAL BACTERIA)

E. coli for short. These are used as indicators of possible sewage contamination because they are specific to fecal material from humans and other warm-blooded animals. Although they are generally not harmful themselves, they indicate the possible presence of pathogenic (disease-causing) bacteria, viruses, and protozoans that also live in human and animal digestive systems. Therefore, their presence in streams suggests that pathogenic microorganisms might also be present and that swimming and eating shellfish might make people sick.

We also took samples for bacteria when we were out on the river. Each of the Water Resources staff in the boats showed their crew how much water to get in the Whirl-pak bags and how to whirl them around three times to get a good seal.

ANALYSIS AND RESULTS

Once we had all of our samples we were ready to begin the next phase. With actual laboratory equipment from the Water Resources Program, students were able to filter their samples. Everyone got to try their hand at placing their own filter, pouring their sample and running the vacuum pump. Angie filtered the samples taken from the Lincoln Paper and Tissue discharge pipe and the very yucky one taken from the Old Town Wastewater Treatment Plant BEFORE it was treated. Many twisted facial expressions were seen when everyone smelled the Lincoln water and saw all of the "floaties" in the sewage.



Can you guess which one of these filters is of the Lincoln sample?

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The grand finale was the trip over to the Water Resources laboratory! There we all put on the necessary safety equipment and performed the last steps in the analyses. We gave the bacteria some dye to absorb so that we could distinguish the different kinds and weighed the filters with the solids on them.

We learned that while the Lincoln sample looked and smelled really bad, the weight of the total suspended solids wasn't any more than the sample taken down here. But what other impacts could those solids have?

Lastly, there were more bacteria colonies on the plates from the samples that were taken when it started to rain. This led us to discuss the other potential sources of bacteria that might come from water running off the land. Can you think of some? Maybe one of the students could help you answer that question - especially after the next unit on non-point source pollution.

Art by James Francis

Winter Solstice

Even though the cold of winter is just settling in upon us, we can take time to celebrate the sun as the days begin to get longer again after December 21st. The Earth is actually nearer the sun in January than it is in June -- by three million miles -- but because the Earth leans slightly on its axis we have all the drama and poetry of our seasons. So Winter Solstice is when, because of the earth's tilt, our hemisphere is leaning farthest away from the sun, and therefore: the daylight is the shortest and the sun has its lowest arc in the sky.

Winter Solstice has been celebrated in cultures the world over for thousands of years. The start of the solar year is a celebration of Light and the rebirth of the Sun. What's important about all the similarities between the ancient beliefs and those of today is the core wisdom found in the stories:

- That all life is cyclical
- That the darkness and cold of Winter will always give way to the light and warmth of Spring
- That, indeed, the new life that emerges in Spring relies on the death of Winter

And it is not a death so much as it is a time of hibernation - for the new life to grow in the womb of the earth, until it is "kissed" by the radiance of the sun.

Winter Solstice is also a time of letting go of the past and going forward in the renewal of the light, when we can be stunned to stillness in order to remember who we are and why we are here.

Artwork by Rod MacIver ~ Heron Dance ~ www.herondance.org

Photo: Martin Neptune

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WHY DOES ICE FLOAT?

And other stuff about life under frozen water

Ever wonder why we sometimes see dead fish floating in the pond during the spring?

Read this article for some thoughts about what might be going on.

Water differs from most other compounds because it is less dense as a solid than as a liquid. Consequently ice floats, while water at temperatures just above and below freezing sinks. As most compounds change from a liquid to a solid, the molecules become more tightly packed and consequently the compound is denser as a solid than as a liquid. Water, in contrast, is most dense at 4°C (39.2 °F)and becomes less dense at both higher and lower temperatures. Because of this density-temperature relationship, many lakes in temperate climates tend to stratify, that is, they separate into distinct layers.

LAKES AND PONDS IN WINTER

After ice forms the water below is sealed off, not allowing any new oxygen to enter the water from the air. However, oxygen may come from streams flowing in or plants creating it from sunlight (when there is not a deep snow cover). So what this means is that, generally, the amount of oxygen in the water decreases throughout the winter. This is especially true when there is a lot of plant material and other organic matter being broken down, which uses up oxygen in the process (decomposition). This is why sometimes small ponds, like the one on Indian Island, experience fish kills. Because, like us, fish need oxygen to breathe!

Low levels of oxygen can also cause a release of phosphorus from the sediments, worsening water quality problems. When a lake mixes in the spring, this extra phosphorus is food for an increased growth of algae. Large amounts of algae (blooms) in the summer can also result in fatally low levels of oxygen.

RIVERS AND THEIR WINTER LIFE

A few insects are active year round, or only active during the winter months. The immature stages of many aquatic insects are able to remain active throughout the year. The adults of the winter stoneflies are active only during the late winter and early spring months, and certain springtails (nicknamed "snow fleas") and winter scorpionflies are also active during the winter months. Most of these insects are equipped with special body fluids that act as antifreeze and prevent the insects from being harmed by the freezing temperatures.

Winter is a time of dormancy and hibernation for some creatures. In streams, during the harsh winter weather, many aquatic insects continue to develop as larvae. However, the small winter stonefly is one of the species that develops and emerges as an adult during the winter months.

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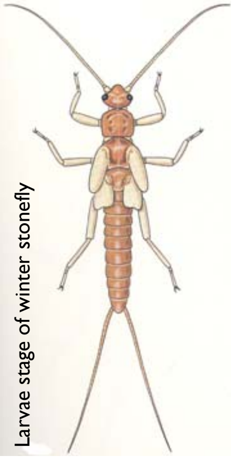


Larvae stage of winter stonefly

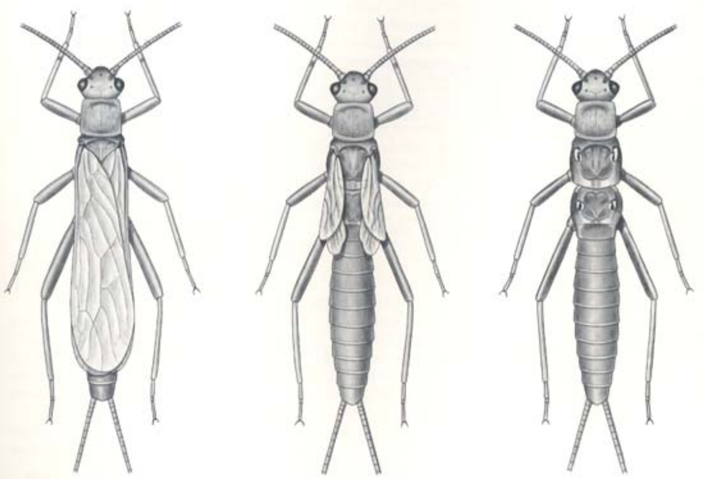
SMALL WINTER STONEFLY INTERESTING FACTS:

- Their life cycle is completely reversed—like working 3rd shift.
- They are believed to be darker in color than other stoneflies so they can absorb more heat from the sun.
- They can often be seen crawling around on the snow and ice.
- They are highly sensitive and cannot tolerate pollution—thus, they are often used as an indicator of water quality.

SMALL WINTER STONEFLY LIFE CYCLE:

1. Eggs hatch in late winter or early spring.
2. Once the water begins to warm larvae migrate downward and eventually settle down in the *hyporheic zone* (See Figure 1).
3. Three to six months of inactivity (known as “diapause”) during which they stop growing and developing.
4. As the stream water begins to cool again, larvae become active and feed and grow rapidly through fall and winter.
5. By winter, development is completed and the stoneflies remain active as adults. The harsh cold temperatures are avoided by escaping into tiny caverns in the snow and ice.

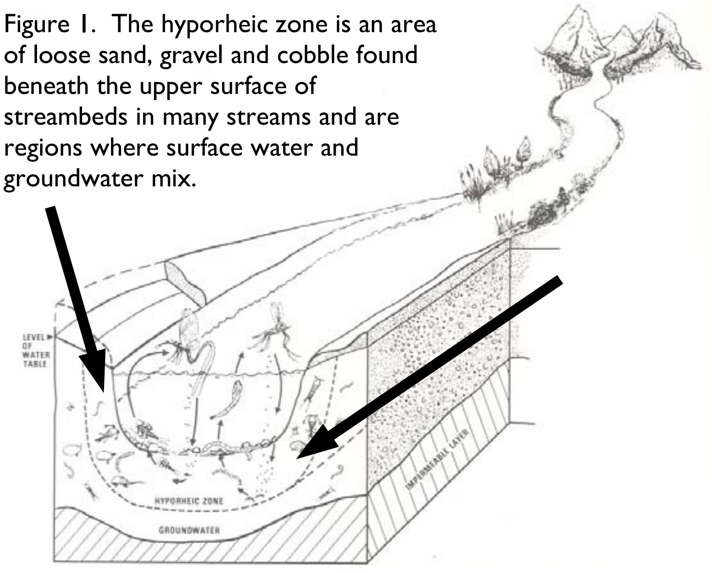
Adult stage of winter stoneflies



This picture shows three varieties of adult wings, from left to right, **fully-winged, short-winged, and micro-winged**.

Perhaps because of their narrow tolerances for cold environments and how often some of these stoneflies are micro-winged they tend to stay located in very specific areas. This characteristic has been found useful in tracking the geological and evolutionary history of an area.

Figure 1. The hyporheic zone is an area of loose sand, gravel and cobble found beneath the upper surface of streambeds in many streams and are regions where surface water and groundwater mix.



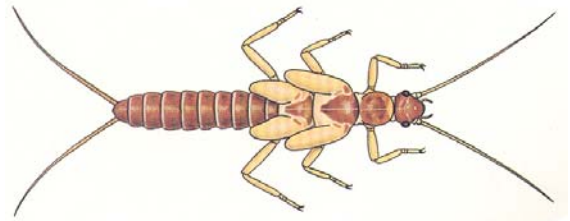
SMALL WINTER STONEFLY HABITAT AND ROLE:

- They inhabit riffles and free flowing waters and are most common in small streams.
- They are known as “shredders” because of their feeding behaviors—they shred leaves and twigs into smaller pieces. Shredding makes the smaller pieces available to other organisms.
- Larvae can consume up to 30% of their body weight each day, even during the coldest winter months.
- They are an important food source—serving as protein for other invertebrate predators such as fish, birds, and salamanders.

The following list of species of winter stoneflies have their presence in Maine confirmed:

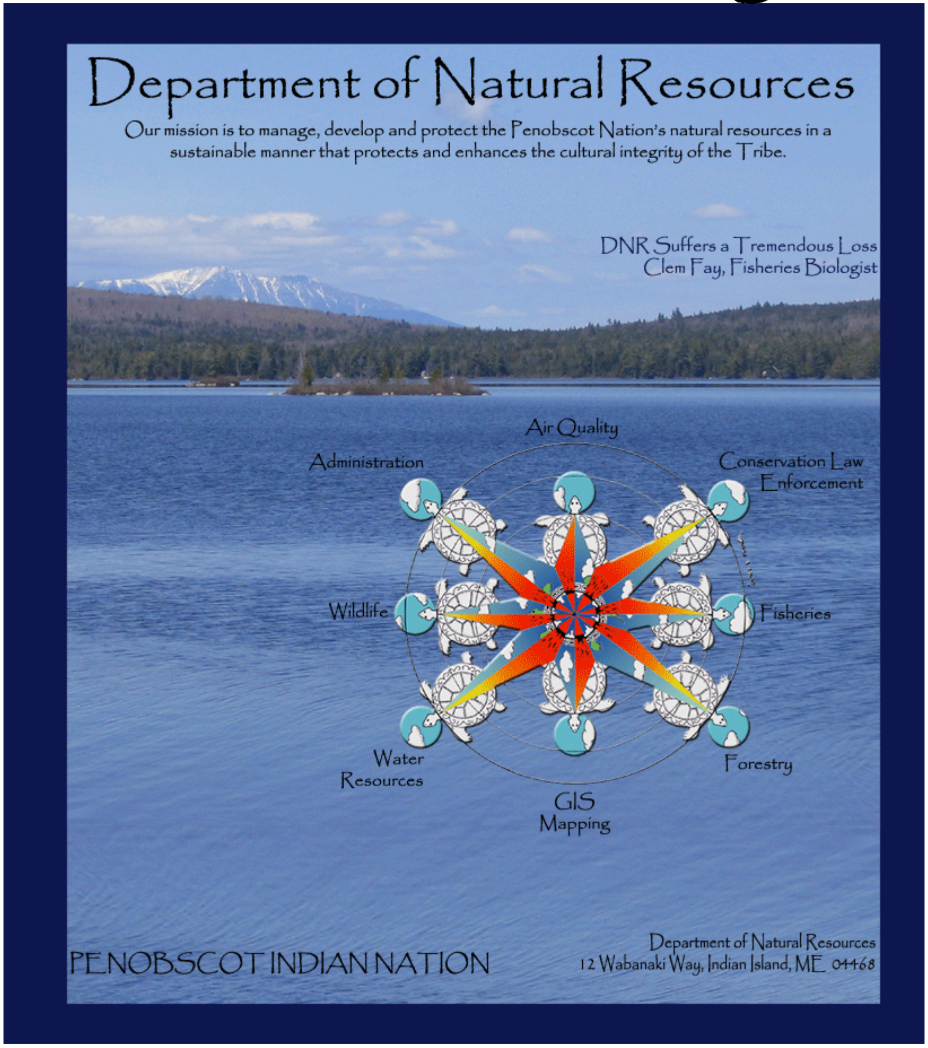
Two-knobbed Snowfly (Allocapnia maria)
Boreal Snowfly (Allocapnia minima)
Pygmy Snowfly (Allocapnia pygmaea)
Manitoba Snowfly (Capnura manitoba)
Angulate Snowfly (Paracapnia angulata)
Northeastern Snowfly (Paracapnia opis)

Larvae stage of winter stonefly



Material in this article was taken from a variety of sources including:
Water on the Web
waterontheweb.org/under/lakeecology/05_stratification.html
Maine Stream Team newsletter
www.state.me.us/dep/blwq/newslet/mstpnews-03-01.pdf

Check Out Our New Web Pages!



Department of Natural Resources

Our mission is to manage, develop and protect the Penobscot Nation's natural resources in a sustainable manner that protects and enhances the cultural integrity of the Tribe.

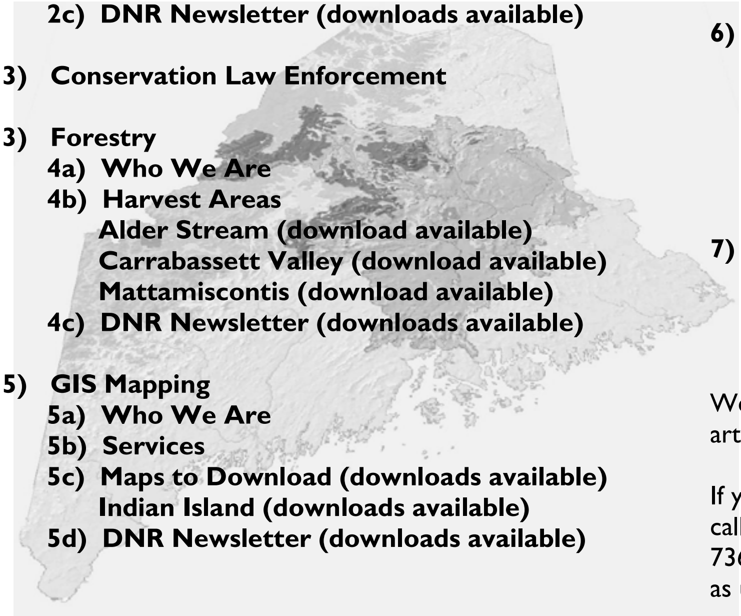
DNR Suffers a Tremendous Loss
Clem Fay, Fisheries Biologist
Air Quality
Administration
Conservation Law Enforcement
Wildlife
Fisheries
Water Resources
Forestry
GIS Mapping
PENOBSCOT INDIAN NATION
Department of Natural Resources
12 Wabanaki Way, Indian Island, ME 04468

DNR is getting a new electronic look.

In order to continually improve upon our appearance to members of the community and our representation of the Penobscot Nation to the rest of the world, we have been redesigning our web pages. We hope that this will give everyone a better idea of the work that is done in the Department, by whom and its quality. These pages also contain locations for you to download information as well as links to other web site resources.

The work started with the Water Resources Program and has blossomed from there. As you can see from the graphic to the right (an image of the DNR home page) every program has a link, even if it is just one page with contact information for now. Some pages have categories listed that don't have a link to them yet. These sites will continue to be under construction and updated so please keep coming back to see what's new!

Here is a list of the pages and the links that are active right now:



1) Adminstration

2) Air Quality
  2a) Who We Are
  2b) What We Do
  2c) DNR Newsletter (downloads available)

3) Conservation Law Enforcement

3) Forestry
  4a) Who We Are
  4b) Harvest Areas
    Alder Stream (download available)
    Carrabassett Valley (download available)
    Mattamiscontis (download available)
  4c) DNR Newsletter (downloads available)

5) GIS Mapping
  5a) Who We Are
  5b) Services
  5c) Maps to Download (downloads available)
    Indian Island (downloads available)
  5d) DNR Newsletter (downloads available)

6) Water Resources
  6a) Fish consumption advisory (download available)
  6b) Who We Are
  6c) What We Do
    Physical and chemical monitoring
    Biological monitoring
  6d) DNR Newsletter (downloads available)
7) Wildlife
  7a) Who We Are
  7b) Hunting Statistics/Regulations
  7c) DNR Newsletter (downloads available)

We thank James Francis and Hugga Dana for letting us use their artwork and photographs on these pages.

If you have any comments about the web site please feel free to call or email Angie Reed at areed@penobscotnation.org or 817-7360. We welcome your feedback and want to make these pages as useful as possible for you.

Pəskehtəkʷok

Joining of the Branches

Photo: Martin Neptune

Winter 2005 ~ Issue 3

Penobscot Indian Nation
Department of Natural Resources
www.penobscotnation.org/DNR/DNR1.htm

Phone Extensions

David Almenas, *Forest Technician*	*7335*
Ron Bear, *Forest Technician*	*7335*
John Banks, *DNR Director*	*7330*
Rhonda Daigle, *Water Quality Monitoring Program Coordinator*	*7326*
Kristin Dilworth, *Big Game Biologist*	*7363*
Yvonne "Cookie" Francis, *Administrative Assistant*	*7331*
Tim Gould, *Game Warden Supervisor*	*7395*
Dan Kusnierz, *Water Resources Program Manager*	*7361*
Frank Loring, *Game Warden*	*7392*
Josh Loring, *Game Warden*	*7392*
Jason Mitchell, *Water Resources Field Coordinator*	*7381*
Jim Pardilla, *Game Warden*	*7392*
Ed Paul, *Game Warden*	*7392*
Jan Paul, *Water Resources Field and Lab Technician*	*7382*
Angie Reed, *Water Resources Planner*	*7360*
Russ Roy, *Forest Manager*	*7339*
Dennis Stevens, *Forester*	*7337*
Bill Thompson, *Air Quality Program*	*7340*
Binke Wang, *GIS Specialist*	*7341*
Water Resources Trainees	*7381*

Penobscot River Data on the Web

This article was taken almost directly from Water Lines, a publication of the George J. Mitchell Center at the University of Maine. Their version and more info can be found at: www.umaine.edu/WaterResearch/outreach/waterlines_v12_n1.htm

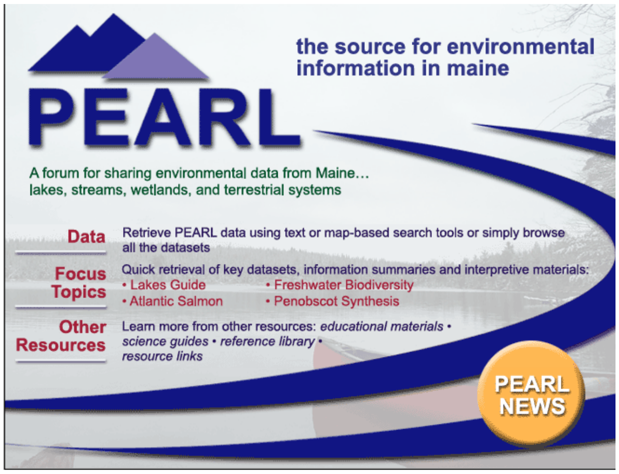
THE MITCHELL CENTER & THE PENOBSCOT RIVER

Anticipating increased interest in the Penobscot River as the Penobscot River Restoration Project moves forward, the Mitchell Center at University of Maine is helping to provide scientists, educators, and communities with needed information on water quality trends, expected impacts of dam removal, river flora and fauna, environmental history, and current monitoring efforts in the Penobscot River watershed. Here, they highlight two of their current Penobscot-related projects.

Penobscot River data on the Web…

PEARL is a clearinghouse for environmental information in Maine, serving as the portal to data from lakes, streams, wetlands, and terrestrial systems, including flora and fauna, water chemistry, and landscape-level information. Data can be retrieved via text-based and map-based searches, at the level of township, watershed and individual waterbody. A section of the PEARL web site dedicated to the Atlantic salmon watersheds provides direct access to key data sets and information summaries for the salmon watersheds, including the Penobscot. Biological data include fishway trap counts, redd counts, and electro-fishing survey results. Chemical data include pH, temperature, and stream chemistry from a variety of monitoring projects. PEARL is currently developing a feature that generates "on-the-fly" summaries of watershed information and data availability. Also under development is a geo-referenced database of journal articles, reports and information summaries. Both features will be available by February 2006. As a statewide information resource, PEARL is housed at the Fogler Library, University of Maine. It is administered by the Mitchell Center in collaboration with PEARL's many partners.

http://www.pearl.maine.edu



the source for environmental information in maine

PEARL

A forum for sharing environmental data from Maine…
lakes, streams, wetlands, and terrestrial systems

Data — Retrieve PEARL data using text or map-based search tools or simply browse all the datasets

Focus Topics — Quick retrieval of key datasets, information summaries and interpretive materials:
- Lakes Guide
- Freshwater Biodiversity
- Atlantic Salmon
- Penobscot Synthesis

Other Resources — Learn more from other resources: *educational materials • science guides • reference library • resource links*

PEARL NEWS

(Continued on next page)

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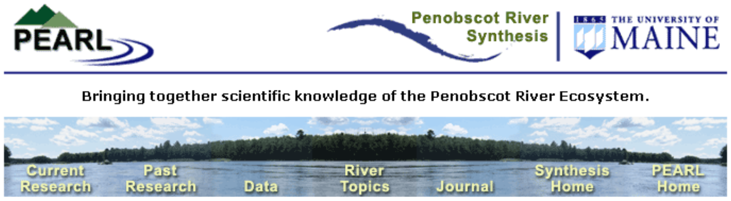


Bringing together scientific knowledge of the Penobscot River ecosystem…

The Penobscot River Synthesis consists of a literature review and data inventory of past and current research in the Penobscot River and its watershed. Housed on PEARL, the Synthesis will provide direct access to a broad array of information from the Penobscot River basin, including: a searchable, geo-referenced bibliographic database of articles, reports, books, videos, recordings, and published research on the Penobscot River; access to key datasets in the PEARL data bank; narrative summaries of topics relevant to dam removal; and publications for a non-scientific audience about the environmental history of the lower Penobscot. Pending future funding, we hope to continue the Penobscot River Synthesis and include more information on current research projects. We hope to extend coverage to the estuary and upper bay, providing a conceptual meeting place for the freshwater and marine science communities. The Synthesis is currently supported by the University of Maine, the Senator George J. Mitchell Center for Environmental and Watershed Research, Maine Sea Grant, and the Atlantic Salmon Federation through an Olin Fellowship.

http://www.pearl.maine.edu/windows/penobscot

Penobscot River Theme for Spring Lecture Series

SPRING 2006 "BROWN BAG IT" SEMINAR SERIES

PENOBSCOT RIVER RESEARCH — LOOKING TO THE FUTURE

The Spring 2006 seminars are sponsored by the Senator George J. Mitchell Center for Environmental & Watershed Research and the UMaine Program in Ecology and Environmental Science.
Unless otherwise noted, all seminars take place at 12 noon in Norman Smith Hall. If you are coming from off-campus, and need parking permits and/or directions, please contact Ruth Hallsworth at 581-3196.

More information can be found at
www.umaine.edu/WaterResearch/outreach/lecture_series.htm

At this site, click on the seminar date for additional information on the seminar and speaker. Any materials or links to relevant materials provided by the speaker are also available there.

Tuesday, March 28 , 2006
Topic: Continued Development of a Fish Assemblage Assessment Method for Non-Wadeable Large Rivers in Maine and New England: 2002-2005
Speaker: Chris O. Yoder, Research Director, Center for Applied Bioassessment and Biocriteria, Midwest Biodiversity Institute

Tuesday, April 4, 2006
1. Topic: Does descaling impair osmoregulation in seawater-challenged Atlantic salmon smolts?
Speaker: Gayle Zydlewski, School of Marine Sciences, UMaine
2. Topic: Sturgeon habitat in the lower Penobscot River.
Speaker: Stephen Fernandes, UMaine

Thursday, April 6, 2006
Topic: Water Quality of the Penobscot River
Speaker: Barry Mower, Division of Environmental Assessment, Maine Department of Environmental Protection

Thursday, April 13, 2006
Topic: Oceanography at Maine Maritime; Particles, Currents and Hydrography in the Penobscot Estuary
Speaker: Lauren Sahl, Corning School of Ocean Studies, Maine Maritime Academy

Thursday, April 27, 2006
Topic: A Pilot Study to Evaluate the Potential for River Water Toxicity to Increase Following Dam Removal
Speaker: Adria Elskus, USGS/Dept. of Biological Sciences, UMaine

Thursday, May 4, 2006
Topic: Mercury (Hg) Cycling in Sulfide-rich Sediments: Contaminant Storage in the Penobscot River Estuary, Maine
Speaker: Karen Merritt, Dept. of Civil & Environmental Engineering, UMaine

Date to be announced
Topic: Valuing Environmental Changes for Decision Making: Dam Removal and Restoration on the Penobscot and Kennebec Rivers
Speaker: Lynne Lewis, Bates College

Check Out These Trends in Big Game Hunting on Tribal Lands!

BEAR: TAKEN BY TRIBAL MEMBERS

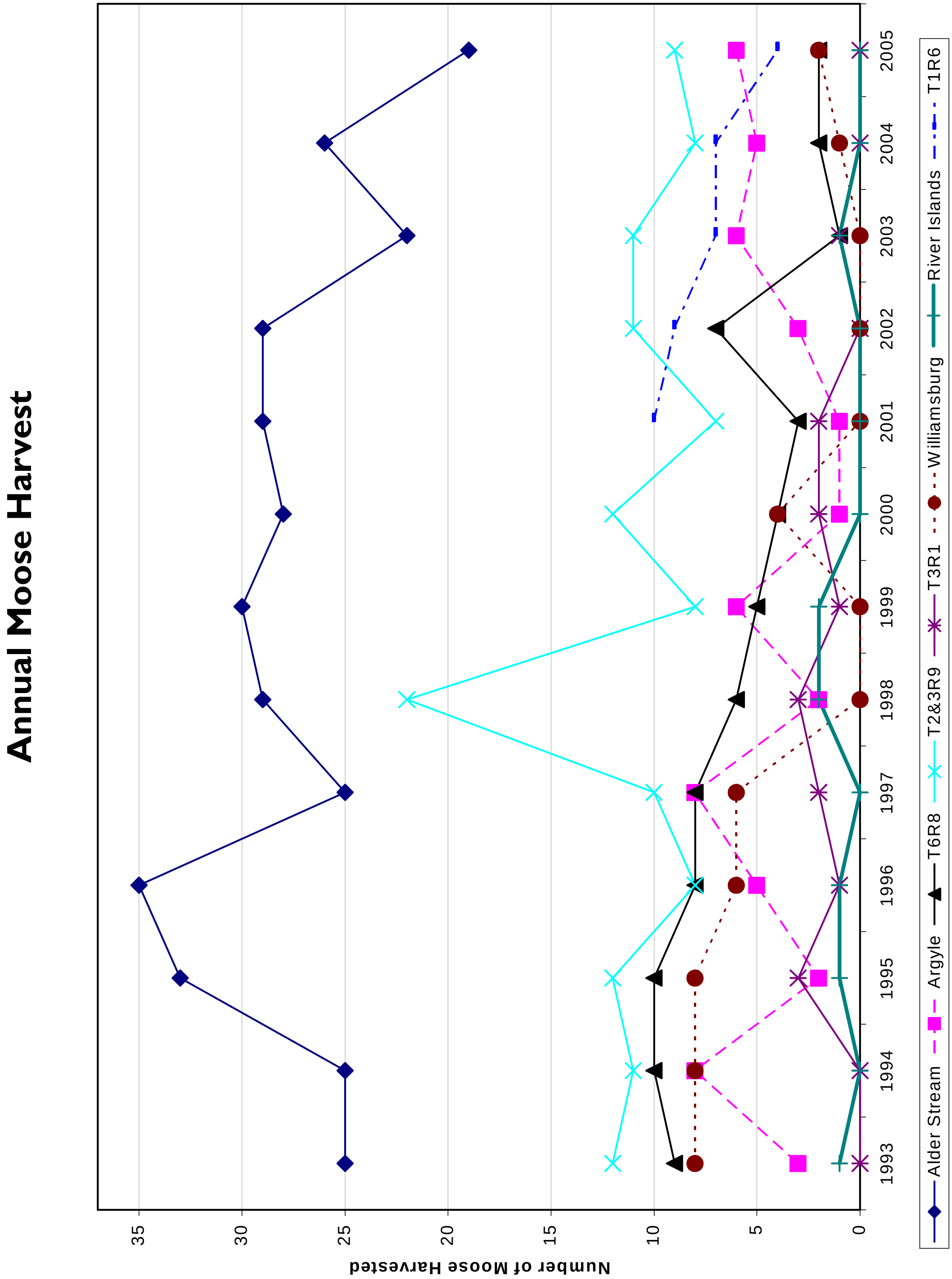
Location	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
River Islands													1
Argyle													1
T2&3R9		1						1					1
TOTAL BEAR		***1***						***1***					***3***

If you have any questions regarding the harvest data,
please contact Kristin Dilworth at 817-7363 or kdilworth@penobscotnation.org.

Watercolor art used with permission from Heron Dance
Copyright 2004 © Rod MacIver www.herondance.org

MOOSE: TAKEN BY TRIBAL MEMBERS

Location	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Alder Stream	25	25	33	35	25	29	30	28	29	29	22	26	19
Argyle	3	8	2	5	8	2	6	1	1	3	6	5	6
T6R8	9	10	10	8	8	6	5	4	3	7	1	2	2
T2&3R9	12	11	12	8	10	22	8	12	7	11	11	8	9
T3R1	0	0	3	1	2	3	1	2	2	0	1	0	0
Williamsburg	8	8	8	6	6	0	0	4	0	0	0	1	2
River Islands	1	0	1	1	0	2	2	0	0	0	1	0	0
T1R6									10	9	7	7	4
TOTAL MOOSE	***58***	***62***	***69***	***64***	***59***	***64***	***52***	***51***	***52***	***59***	***49***	***49***	***42***


Annual Moose Harvest
Number of Moose Harvested
0
5
10
15
20
25
30
35
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
Alder Stream
Argyle
T6R8
T2&3R9
T3R1
Williamsburg
River Islands
T1R6

DEER: TAKEN BY TRIBAL MEMBERS

Location	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Alder Stream	2	0	5	8	3	11	1	7	11	8	4	4	0
Argyle	12	8	11	13	11	11	11	4	6	6	5	2	2
T6R8	4	8	7	9	7	1	2	7	3	1	1	0	0
T2&3R9	5	0	6	1	0	4	2	2	0	0	3	2	0
T3R1	0	0	0	0	0	0	2	0	0	0	0	0	0
Williamsburg	0	0	0	3	0	0	0	0	0	4	0	1	0
River Islands	27	19	20	20	30	11	15	21	24	13	7	15	12
T1R6										1	0	1	0
TOTALS	*50*	*35*	*49*	*54*	*51*	*38*	*33*	*41*	*44*	*33*	*20*	*25*	*14*

DEER: TAKEN BY NON-TRIBAL MEMBERS

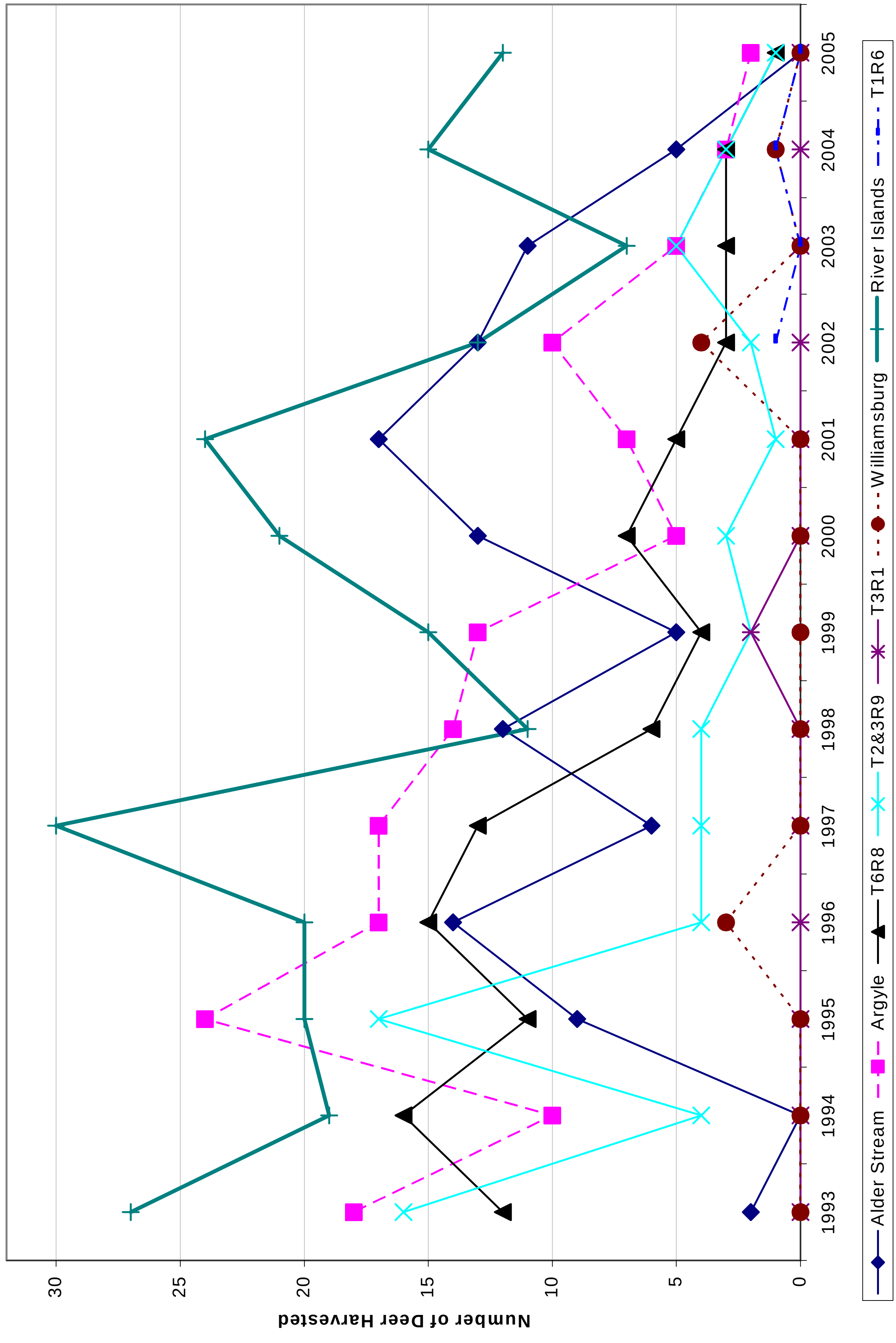
Location	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Alder Stream	0	0	4	6	3	1	4	6	6	5	7	1	0
Argyle	6	2	13	4	6	3	2	1	1	4	0	1	0
T6R8	8	8	4	6	6	5	2	0	2	2	2	3	1
T2&3R9	11	4	11	3	4	0	0	1	1	2	2	1	1
TOTALS	*25*	*14*	*32*	*19*	*19*	*9*	*8*	*8*	*10*	*13*	*11*	*6*	*2*

DEER: TAKEN BY TRIBAL AND NON-TRIBAL MEMBERS

Location	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Alder Stream	2	0	9	14	6	12	5	13	17	13	11	5	0
Argyle	18	10	24	17	17	14	13	5	7	10	5	3	2
T6R8	12	16	11	15	13	6	4	7	5	3	3	3	1
T2&3R9	16	4	17	4	4	4	2	3	1	2	5	3	1
T3R1	0	0	0	0	0	0	2	0	0	0	0	0	0
Williamsburg	0	0	0	3	0	0	0	0	0	4	0	1	0
River Islands	27	19	20	20	30	11	15	21	24	13	7	15	12
T1R6										1	0	1	0
OVERALL TOTALS	***75***	***49***	***81***	***73***	***70***	***47***	***41***	***49***	***54***	***46***	***31***	***31***	***16***

Photos by Joe "Hugga" Dana

Annual Deer Harvest



PENOBSCOT NATION TO HOST NATIONAL CONFERENCE

NATIVE AMERICAN FISH AND WILDLIFE SOCIETY

MAY 21 - 25, 2006 IN BAR HARBOR

This is an excellent opportunity for the tribe as representatives, biologists,
and tribal members from across the country
will be in attendance.
We will continue to post updates in the newsletter as the date approaches,
so stay tuned!
If you have any questions please contact
Tim Gould (871-7395) or
Kristin Dilworth (817-7363) or
visit the Native American Fish and Wildlife Society website:
www.nafws.org

Monitoring Contaminants in Bald Eagles - by Dan Kusnierz

Photo: Joe "Hugga" Dana

There are few, if any, things as awe-inspiring as an adult bald eagle taking flight from a tree immediately overhead as you paddle your canoe amongst islands in the Penobscot River.

As a species of great cultural importance to Penobscot people PIN DNR is concerned with trying to protect the bald eagle. Because eagles are long-lived and eat lots of fish they can be at risk from contaminants, including dioxin, PCBs, and mercury, that accumulate in their body (bioaccumulative). For these same reasons they are also an excellent indicator of the availability of these contaminants in the environment in which they live.

As you may recall a chemical known as DDT, was blamed for the near extinction of eagles throughout the country. In the 1960-70s the Maine statewide population was knocked back to only a few nesting pairs all of which were in the Down East coastal region. Thanks to the ban on DDT, the Endangered Species Act, and protection of nesting habitat, bald eagles have greatly rebounded. In 2005 there were 385 nesting pairs counted during surveys in Maine and these birds were found scattered throughout the state. The species has rebounded so well that US Fish and Wildlife Service is considering removing eagles from the Endangered and Threatened species list. However, despite our large population, the productivity rate of eagles in Maine is lower than that of eagles in some other parts of the country. We are concerned that contaminants in eagles may still be limiting eagle productivity and could cause the population to decrease as these toxics continue to bioaccumulate.

There are currently several research projects underway in Maine that examine toxic contaminant levels in breeding bald eagles. While we are not conducting our own research, PIN DNR (Water Resources Program and Wildlife Program) has been collaborating with researchers on some of these projects to sample eagles nesting along the Reservation and Trust lands. Information gathered from these studies will be valuable to determine the risk posed by contaminants on nesting eagles and to help identify and control sources of these contaminants.

Feeding Eagles May Harm Them

While well-intended, the practice of feeding eagles in the winter is not only illegal, under state laws on state land, but may also harm them. Butcher scraps from deer or moose often contain very high levels of lead or other metals (bullet fragments or residue). Fish provided by people may have high concentrations of mercury or other toxins. A very small amount of lead or other contaminants can be harmful. Also, be aware that baits placed for coyotes or other animals can unintentionally attract eagles and may put them at risk from snaring or contamination.

These projects include:

- A study led by Biodiversity Research Institute (BRI) to examine mercury levels found in blood and feathers of eaglets and feathers of adults. This study repeats work

(Continued on next page)

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that was done in the early 1990s to see if mercury levels have changed over time. The study also examines whether mercury levels affect productivity rates, identifies mercury "hot spots" and determines whether mercury levels in eagles are affected by the type of habitat where the birds nest.

- Banding eaglets with colored and unique number coded leg bands. These bands give existing and future researchers the ability to identify specific birds, and provide information about age and movement patterns
- A project by USFWS to analyze levels of numerous toxic contaminants in eagle eggs that failed to hatch. The toxics tested include organochlorine compounds (dioxins, furans, PCBs, pesticides, etc.) and trace metals (mercury, arsenic, cadmium, lead, etc.). The information is invaluable for evaluating the whether pulp mills and other discharges are continuing to release certain contaminants, and what the potential health effects are of those compounds.
- A project led by USFWS to measure and evaluate levels of contaminants (organochlorine compounds and trace metals) in livers of bald eagle found dead in Maine. As banded birds die and are recovered, the examination of local, known-age livers will provide valuable information on the effect and bioaccumulation of contaminants in bald eagles.

Eaglet who had both legs banded at Seboeis Lake.

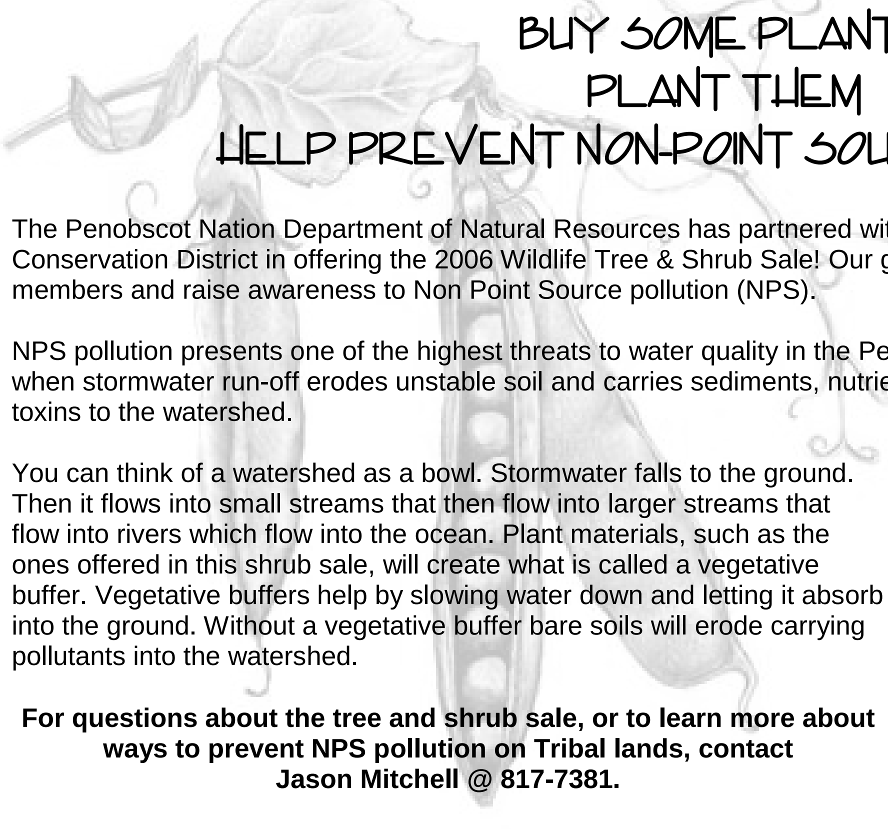
Watch Eagles Live on the Eagle-cam!

BRI has a great website up now at which you can watch a pair of eagles, live via a web-cam, as they build a nest and get ready to have some eaglets. Go to this site and look at the still images or click on Live Video:

www.briloon.org/ed/eagle/index.htm

PENOBSCOT NATION COMMUNITY MEMBERS

BUY SOME PLANTS
PLANT THEM
HELP PREVENT NON-POINT SOURCE POLLUTION



The Penobscot Nation Department of Natural Resources has partnered with the Penobscot County Soil and Water Conservation District in offering the 2006 Wildlife Tree & Shrub Sale! Our goal is to provide plant materials to Tribal members and raise awareness to Non Point Source pollution (NPS).

NPS pollution presents one of the highest threats to water quality in the Penobscot watershed. NPS pollution occurs when stormwater run-off erodes unstable soil and carries sediments, nutrients, bacteria, pesticides, and many other toxins to the watershed.

You can think of a watershed as a bowl. Stormwater falls to the ground. Then it flows into small streams that then flow into larger streams that flow into rivers which flow into the ocean. Plant materials, such as the ones offered in this shrub sale, will create what is called a vegetative buffer. Vegetative buffers help by slowing water down and letting it absorb into the ground. Without a vegetative buffer bare soils will erode carrying pollutants into the watershed.

For questions about the tree and shrub sale, or to learn more about ways to prevent NPS pollution on Tribal lands, contact Jason Mitchell @ 817-7381.

All orders must be pre-paid and placed through the Penobscot County Soil and Water Conservation District.

Orders from Penobscot Nation community members will be picked up by PIN DNR staff and delivered to your house.